10-9-2019 1:00 PM

Japanese patients' preference for Patient-centered medicine and its association with the satisfaction of patients with their family physicians

Tesshu Kusaba

Abstract

Aims: This thesis explored Japanese patients' preference for Patient-centered medicine, which was one of the core principles of family medicine, and its association with the satisfaction of patients with their family physicians.

Method: A cross-sectional study was conducted to examine Japanese patients' preference for 3 factors of Patient-centered medicine and their satisfaction with the practice by family physicians, using patient questionnaires pre and post consultation.

Findings: The majority of Japanese patients preferred all 3 of the factors of Patient-centered medicine: Communication, Partnership and Health Promotion. The more vulnerable the patients, the more their expressed preference. A high proportion of patients were satisfied with the consultation provided by family physicians, and the groups of patients who were strongly satisfied were more likely to prefer "Partnership".

Conclusion: The majority of Japanese patients, especially the vulnerable, preferred Patient-centered medicine and were satisfied with the consultation provided by family physicians. And, the importance of the 'Partnership" component of patient centered practice was shown in Japan as it has been in literature from Western countries.

Keywords

Family Medicine, Patient-centered medicine, Patient Satisfaction, Partnership

Summary for Lay Audience

In Western countries of the world, Patient-centered medicine and patient satisfaction have been studied. Because of these studies, the concept of Patient-centered medicine has become a really important part of the practice and education about primary care and family practice. But in non-western countries, such as Japan, there are very few papers on this topic. Now the role of Family medicine / Primary care is changing in Japan because of the aging population and large use of specialist medicine. So, we want to assess how important patients think Patient-centered medicine is in Japan and to see if it is connected to patients' satisfaction with their care by family doctors.

Before their visit with the family physician, patients were asked about how much they wanted Patient-centered care. After the visit, patients were asked about their satisfaction with the visit. Both were associated with patient characteristics and they were correlated with each other.

In general, more than 80% of patients wanted each of the three factors of Patient-centered medicine: Communication, Partnership and Health Promotion. The more vulnerable the patients (higher age, more anxiety and feeling more ill), the more they expressed preference for all three factors: patient-centered Communication, Partnership and Health Promotion. Many patients were satisfied with the visit provided, and the groups of patients who were strongly satisfied were more likely to prefer "Partnership".

According to these findings, Patient-centered medicine is preferred in Japan which is a non-Western country to the same extent as in Western country like the UK. As well, Japanese patients were satisfied with the consultation provided by family doctors. This finding provides evidence for the usefulness of Patient-centered medicine in Japan. And, the importance of 'Partnership" is shown not only in a Western country but also in Japan. Based on the findings, it is important for family doctors to build strong partnerships with patients, have good communication in daily practice and sometimes provide health promotion, especially for vulnerable patients such as the elderly, patients with anxiety and patients feeling ill. It is also important to teach Patient-centered medicine from the beginning of learning in medical school to residency training toward family medicine board-certification.

Acknowledgments

Working on this thesis was a really long and exciting journey for me as a Japanese family physician. I was so impressed with the concept of Patient-centered medicine and felt it could be useful also in Japan when I was a trainee, so it was really natural to select Patient-centered medicine as my research question for the thesis. But it took a long time to make this idea a reality and it was impossible to finish my work without the support of many people, especially because I am in a very busy clinical practice and have the added responsibilities as the director of the Hokkaido Centre for Family Medicine and the executive officer of the Japan Primary Care Association. I am greatly indebted to the following people and owe my gratitude.

To Dr. Moira Stewart for her invaluable advice, guidance, mentorship, inexhaustible encouragement and commitment for distant education teleconferences from Canada to Japan. To Dr. Judith Belle Brown for her overall support for my distant work for long time. To the Department of Family Medicine and the program of Graduate Studies in Family Medicine at the Western University for their support. To Ms. Tomomi Kuwabara for her invaluable support in collecting data and conducting analyses as a research assistant. To the patients and family physicians who gave their valuable time to participate. To my colleagues at the Hokkaido Centre for Family Medicine in Hokkaido for their patience, support and their dedication to excellence in patient care, teaching and research. To my wife Ryoko and my children Tesshin, Reira and Mizuki for their ongoing support and patience through this thesis and in our family life together. To my parents Tessaburo and Keiko Kusaba for their warm support. And finally, but not least, to all of our patients who entrust us to walk with them through their life journey.

Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

1 Introduction

The term “Patient-centered” was first used by Balint and colleagues (1) and early researchers were Byrne and Long (2). Stewart et al. in the department of family medicine at Western University in Canada developed the concept for practice, research and education (3). The concept was based on Dr. Ian R McWhinney’s work elucidating “real reason” the patient presented to the doctor (4). It led to Moira Stewart’s work of exploring the patient-physician relationship, and finally Dr. Joseph Levenstein’s work of developing a model of practice (5). Then academic organizations in many countries adopted this concept not only for daily practice but also for medical education.

In this chapter, the recent known evidence about Patient-centered medicine and patients’ satisfaction is comprehensively reviewed and some research questions are provided based on this review.

1.1 Definition and impact of patient-centered medicine

1.1.1 Methodology for literature search on definition and impact of patient-centered medicine

116 original research articles were selected by the literature search using MESH words “patient-centered medicine or patient-centered care or patient-centered approach”, “primary care” and “research” in 2008-2017. From these articles, 14 articles were selected based on quality and the relevance for this study’s concept (Fig 1.1).

1.1.2 Review of the literature on definition and impact of patient-centered medicine

In Western countries, some clinical research about “Patient-centered medicine” revealed the benefit of this concept upon not only patient satisfaction but also clinical indicators. 14 articles were selected by reviewing all 116 original research articles associated with patient-centered care and primary care in these 10 years and they can be classified into 6 categories: illness and context (6); doctor-patient relationship (7, 8); toolkit for patient-

centered care (9); clinical outcomes of patient-centered care (3, 10-14); education about patient-centered care (15); patient satisfaction about patient-centered care (16-19).

The papers on illness and context showed that physicians were not good judges of patient's health beliefs, but had a substantially better understanding when patients more actively participated in the consultation (6).

The two papers on doctor-patient relationship focused on the following aspects of relationship: gender concordance; and patient-provider communication on medication adherence (7) (8).

The toolkit consisted of a co-designed health and lifestyle-screening tool; the quality of care such as patient-centered care and youth friendliness was assessed by young patients using this tool (9).

According to the articles relevant with clinical outcomes of patient-centered care, patient-centered care was associated with improved drug adherence (3, 10), symptom relief of chronic pain (11, 12), high-quality chronic care for Chronic Obstructive Pulmonary Disease (13) and decreased use of emergency room (14).

The education program was on patient-centered communication and was found to have a positive impact on patient satisfaction, treatment adherence, and self-management (15).

Patient satisfaction studies in relation to Patient Centered Care mentioned that patient satisfaction was related to accessibility, patient empowerment, practice style and patient-centeredness (16-19).

1.2 Review of patient satisfaction

1.2.1 Methodology for literature search on systematic reviews of patient satisfaction

80 original systematic review articles were selected by the literature search using MESH words “patient satisfaction”, “primary care” and “systematic review” in 2008-2017. From these articles, 24 articles were selected based on its quality and the relevance for this study’s concept (Fig 1.2).

1.2.2 Review of the literature on patient satisfaction

24 articles were selected by reviewing all 80 systematic reviews about patient satisfaction and they were classified into 5 categories regarding patient satisfaction: specific health problems (20-26); communication in consultation (27-32); inter-professional collaboration (33-37); practice management (38-41); inter-facility collaboration (42, 43).

According to the systematic reviews relevant to communication and patient satisfaction, patient satisfaction was improved by better communication style (27), longer consultation length (28), more sustained continuity of care (29), increased patients' participation of medical consultation (30) and decreased EMR use in consultation (31). A brief training and education program based on the feedback of patient assessments of interpersonal care to physicians was found to improve the patient satisfaction (32).

These review papers on patient satisfaction and communication came from 7 countries (USA, UK, Canada, the Netherlands, Australia, Norway and Brazil) (27-32).

According to the articles relevant to the patient satisfaction with patient-centered care, patient satisfaction was related to accessibility, patient empowerment, practice style and patient-centeredness (16-19).

1.3 Patient-centered medicine in non-western countries or culture

According to the literature review about the patient-centered medicine in non-western countries or cultures, using MESH terms "patient-centered medicine or patient-centered care or patient-centered approach", "primary care" and "culture, cross-cultural comparison, cultural effect, cultural difference, nationality or Asia", it was difficult to find the articles including not only original research or general remarks or commentary, which dealt with cultural effect or cultural difference about patient-centered care. Only the articles associated with the cultural difference of patient autonomy about decision making could be found (44-47). The paucity of papers in this area showed the gap in the literature in this theme.

1.4 Influence and insight about Japanese society

Family medicine / Primary care has not been recognized as the independent medical area in Japan for very long (48, 49). Now its role and significance is being reviewed in light of Japan's structural changes such as rapid aging population (50, 51) and specialization of medicine (52). Also although a core component of family medicine, Patient-centered medicine is sometimes misunderstood as patient consumerism or doctors' attitudes (53).

The background of this misunderstanding may include 2 factors. The first factor is the history of Japanese medicine. Some people tend to regard the most important aspect of medicine as high technology and neglect the other aspects of medicine such as medical communication (52). The second factor is culture. The Japanese tend to depend on authority such as doctors or government without criticism. So, the idea of finding common ground through mutual discussion with doctors confuses Japanese patients sometimes (52).

In Japan, there are only some papers advocating the importance of Patient-centered care (54) and there are few papers dealing with this concept directly or indirectly.

1.5 Research question suggested by the literature searches

Based on the literature searches, this research was planned to answer these 2 main research questions.

1. What components of Patient-centered medicine do the Japanese patients prefer? And, what characteristics of patients have associations with it?
2. What components of patients' preferences for Patient-centered medicine are associated with the satisfaction of patients?
3. Is there an association (correlation) between patients' satisfaction and the patients' characteristics?

Through this study, we can

- ✓ understand the preference and importance of Patient-centered medicine in Japanese patients with common health problem
- ✓ understand what they feel about Patient-centered medicine in daily medical

consultation

- ✓ reflect on our clinical practice and clinical education regarding Patient-centered medicine as core component of family medicine
- ✓ find some hints to adjust Patient-centered medicine to fit Japanese patients' preference and improve their satisfaction through Patient-centered medicine
- ✓ find any differences between Japan and other countries of the world about the preference for Patient-centered medicine

Figure 1.1 Flow diagram of the papers reviewed regarding Patient-centered medicine

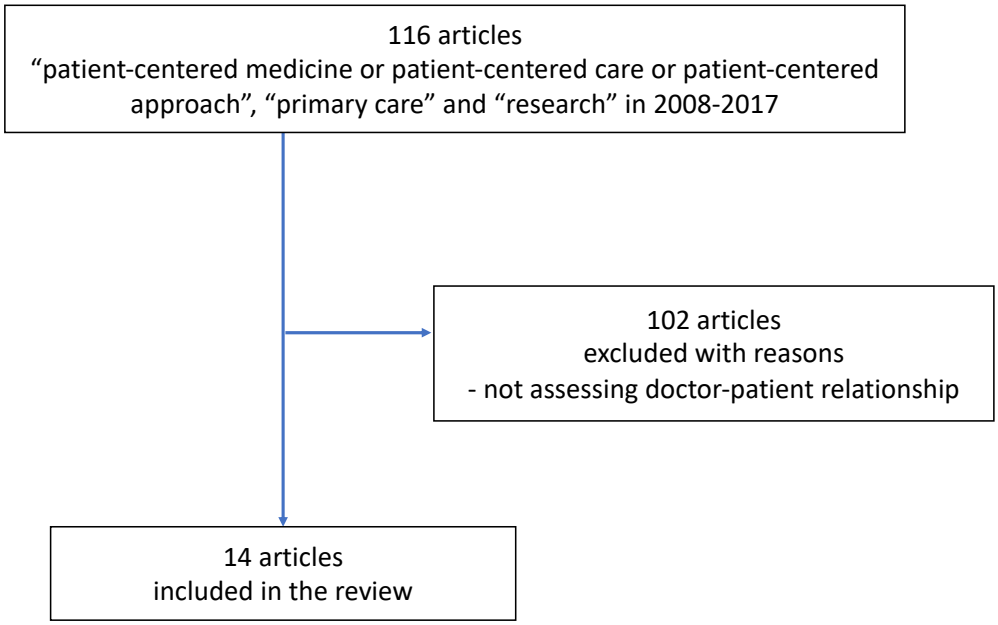
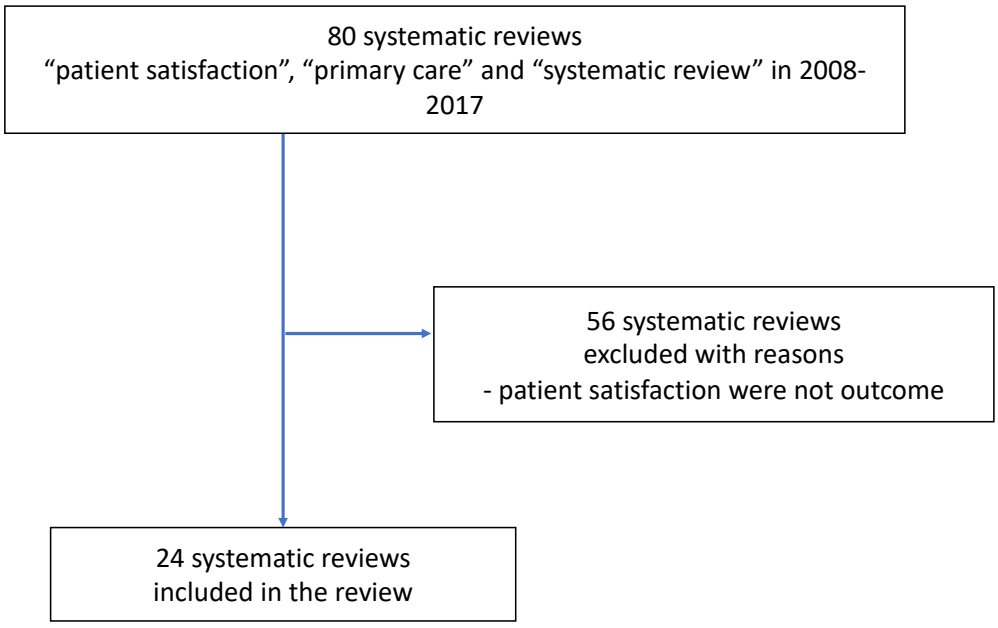


Figure 1.2 Flow diagram of the systematic reviews regarding Patient Satisfaction



Chapter 2

2 Japanese patients' preference for patient-centered medicine

In this chapter, one of the research questions raised in Chapter 1 is explored, that is Japanese patients' preference for the whole and parts of Patient-centered medicine and the association of those preferences and patients' characteristics.

2.1 Background

Family medicine / Primary care was recognized as the independent medical discipline in Japan quite recently (48, 49). Now its role and significance has been reviewed and strengthened in Japan's structural changes proposed to address the rapidly aging population (50, 51) and the dominance of specialization in medicine (52). In this context, the Japanese leaders of change in the health care system, have applied the concepts and frameworks of family medicine to reconstruct primary care in Japan (55, 56). As part of this process it has become clear to this author that among the core components of family medicine, "Patient-centeredness" or "Person-centeredness" is sometimes misunderstood as either consumerism of the patients or an attitude of the doctors (53). These definitions are not what is found in the world literature (5) (16, 57).

In this context, then, in Japan, with patients tending to feel that the most important aspect of medicine is high technology and also depending on the doctors' authority (52), the patient-centered concepts such as "finding common ground" may not be understood nor acceptable. This hypothesis led to the research question for this study.

2.2 Objective

The objective of the study is to identify patients' preferences for patient centered consultations in Japanese general practices and to show which components of patient-centered medicine are preferred by Japanese patients. Therefore, the research question is : Is there an association (correlation) between patients' preference for patient-

centered care and the patients' characteristics after controlling for co-variables; i.e. Do each of the three components (Communication, Partnership and Health Promotion) of patients' preferences correlate with the patients' characteristics? (58)

2.3 Method

2.3.1 Design

Cross-sectional study

2.3.2 Setting and practices

We chose 6 local private primary care clinics giving ambulatory care by board-certified family doctors in Hokkaido province of Japan. They were also training practices in the residency program of family medicine and supportive for academic work including primary care research. The six practices selected represented a range of settings to ensure that the impact of demographic factors on patient preference could be assessed. Two practices were in residential areas of a middle-size provincial city; one practice was serving urban population of megalopolis; three practices were in small towns known for agriculture, fishing and sightseeing.

2.3.3 The factors: Patient Characteristics

In the questionnaire delivered to patients, the following six items describing patient characteristics were included: socio-demographic details (sex, age, paid work, family construct), nature of presenting problem, number of medical problems, reason for visit, how unwell the patients were feeling, and how worried they were about the problem (on 5-point Likert scale) (58) . The following three items were added based on the author's experience in Japanese medical system: length of relationship with practice, travel time to

a practice from their house, and main doctor's type (the doctor was the director of the clinic or not.).

2.3.4 The outcome: Questionnaire

The questionnaire on patients' preference for patient-centeredness was based on Little et al.'s questionnaire contained in a paper entitled "What patients want from their practitioner: descriptive data and factor analysis." (58).

2.3.4.1 Items and Response choices

This questionnaire had 23 items which are shown in Table 2.2 in the results section. The stem of this questionnaire was: "I want the doctor to …". The patients were offered the following response choices: "Very strongly agree", "Strongly agree", "Agree", "neutral" and "Disagree".

2.3.4.2 Little et al.'s factor analysis

Little et al. conducted factor analysis of the 23 items in this questionnaire and discovered 3 factors which covered 16 of 23 items: factor 1 on Communication (9 items); factor 2 on Partnership (5 items); and factor 3 on Health Promotion (2 items). The remaining items included 2 items on what Little et al. call; Practical Medicine. He included 2 items; one on physical examination and one on medication prescriptions. For this study two additional items were added to the Practical Medicine section, based on the author's experience in Japanese medical system. They were: preference for a blood and urinary test; and preference for an X-ray test.

2.3.4.3 Validity and reliability

This questionnaire's validity was evaluated by factor analysis (Cronbach's α between 0.87 and 0.92 for each factor) and its reliability was also checked by test-retest (correlation between 0.47 and 0.71) (58).

2.3.4.4 Translation and back translation

The original questionnaire of Little et al. was translated into Japanese by the author. This Japanese version was back translated into English by a professional translator. This English version was checked by the supervisor and corrected to fit with the original meaning. Based on these corrections, the author revised the Japanese version.

2.3.4.5 Factor scores

The factor scores were the mean of items included in each factor, using 5 for "Very strongly agree", 4 for "Strongly agree", 3 for "Agree", 2 for "neutral" and 1 for "Disagree". These factor scores are also referred to as components of patients' preferences.

2.3.5 Inclusion and exclusion criteria

Patients were Japanese, 20 to 85 years old, no dementia, not pregnant, without disability with regard to writing and without an urgent problem.

2.3.6 Pilot study

The draft questionnaires were piloted among 40 patients. Some parts of questionnaire were not answered correctly because of poor appearance of sentences and layout. And questions on some pages were completely unanswered by some patients because they could only see one side of paper printed on both sides. Some sentences of questions were criticized as being difficult to understand. According to these results of pilot study, we revised the questionnaire to be answered more easily and clearly.

2.3.7 Ethics

Both the main study and pilot study had ethical approval from Japan Primary Care Association research ethics committees. A poster about the purpose and contents of this study was shown on the wall of waiting room and gave patients the chance to refuse to participate in this study, as well as the possibility of verbal refusal to the research assistant.

2.3.8 Data collection

We recruited consecutive patients in the waiting room. The clerks and nurses checked the patient's compatibility with the inclusion criteria and the research assistant approached all eligible patients. The research assistant explained the general information about the study to the patient. After informed consent, patients completed the pre-consultation questionnaire including the questionnaire items on patients' preferences for patient-centered care and the patients' characteristics by themselves. The research assistant observed this process and supported patients if needed.

2.3.9 Sample size

In both Little et al. and the pilot study, a difference of the preference about patient-centered patient-doctor relationships between the groups who had strong anxiety about their health and the group who had less anxiety was found to be 17% (the former group score was 19% and the latter was 36%). So according to the sample size calculation (α=0.05, β=0.2) (59) , we calculated that we needed 302 patients to detect a similar difference.

2.3.10 Analysis

We evaluated the association between patient's characteristics and the 3 factors of preference for patient-centeredness (which were scores) by bivariate analysis using the t-test. The multivariate analysis used the program JMP Pro (based on SAS) and conducted

a test of mixed model with fixed effects to account for the nesting of patients within doctors (Appendix 1); it included selected variables after the bivariate analyses, and controlled for them and for the 6 practices. Patient characteristics that showed p-values of less than 0.10 in the bivariate analyses, were included into the multivariate analyses. The Practical medicine items, which were also outcomes, were dichotomous and therefore the patient characteristics were associated using chi-squared tests; the multivariate analyses were conducted using logistic regression, which also accounted for the nesting of patients within doctors.

2.4 Results

Approximately 400 patients were approached to answer the questionnaire, and less than 60 patients refused (approximately 15%) because of lack of time or difficulty to read and write due to aging. So, as a result, 341 patients answered pre-consultation questionnaires. Of 341 questionnaires, 79 (23.2%) were excluded because of lack of data on more than 3 items of all 49 items and 262 (76.8%) were used for the analysis (Fig 2.1). The patients included were significantly younger, less likely to be living alone, more likely to have paid work, having lower travel time and having more medical problems (Appendix 2).

2.4.1 Patient characteristics

The patients' characteristics are shown in Table 2.1. Compared with patients' estimates from the national patient survey, the sample had a similar percentage of female (52% versus 58% in national patient survey), and was similarly mostly an aged population (44% aged 20-64 years, 31% aged 65-74, and 25% aged 75-85 in the present study versus 47%, 27%, and 26% in national patient survey). As well the family structure of living alone or as a couple were similar (21% living alone, 40% couple, 29% 2 generations, and 7% 3 or more generations in the present study versus 35%, 20%, 36% and 6% in national patient survey).

The sample patients had a minority who were working (42%), the average number of years visiting the doctor were 9.3 years, the average travel time to clinics was 17 minutes, the average number of medical problems they had was 1.6, their usual physician in charge was mostly non-regular doctor (50% versus 30% director, 6.5% deputy director and 13% other doctors), and the reason for today's visit was mostly regular visit (78% versus 10% acute illness and 12% acute illness and regular visit). And, the sample patients were mostly feeling well (76% slightly or not unwell versus 24% very or moderately unwell), but feeling more worried (68% very or moderately versus 32% slightly or not).

2.4.2 Main results

Table 2.2 shows patients' preferences for the consultation for 23 items in the questionnaire. Most patients wanted all aspects of good Communication, Partnership, and Health Promotion (questions answered with agree or more strongly for these domains, ranged from 81-95%, 77-88%, and 86-92% respectively).

Figure 2.2 to 2.4 inclusive show the distributions of patient preferences for Communication (factor1 score), for Partnership (factor2 score) and for Health Promotion (factor 3 score). We can see the Communication distribution is very similar to a normal distribution with the most frequent score as 3.00 (Figure 2.2). For factor 2 and 3, on Partnership and Health Promotion, the most frequent score was also 3.00 (Figure 2.3 and 2.4).

2.4.3 Analysis of predictors of patients' desire for patient centered medicine

Tables 2.3 to 2.5 inclusive show the result of bivariate analyses for all patient characteristics in association with each of the factors: Communication (Table 2.3), Partnership (Table 2.4) and Health Promotion (Table 2.5).

Tables 2.6 to 2.8 inclusive show the results of multivariate analyses of predictor valuables in relation to each of the factors: Communication (Table 2.6), Partnership (Table 2.7) and Health Promotion (Table 2.8). The groups of patients who agreed strongly that they wanted good communication were more likely to be very worried

(Table 2.6). Similarly, those wanting Partnership were more likely to feel particularly unwell and be very worried (Table 2.7). Those strongly wanting Health Promotion were more likely to be very worried and have acute illness (Table 2.8).

No factor of patient centeredness was related to patients' age, sex, family structure, whether they have paid work or not, visiting years, travel times, the number of medical problems, whether regular physician in charge or not, today's doctor is director or not, and consultation time.

2.4.4 Patients' desire for Practical Medicine: examination, prescription, laboratory tests, and X ray

71% of patients wanted an examination, 73% patients wanted a prescription, 66% wanted laboratory tests, and 68% patients wanted X-ray (Table 2.2).

Table 2.9 to 2.12 inclusive show the results of bivariate analyses for all patient characteristics in association with each content of Practical Medicine: Examination (Table 2.9), Prescription (Table 2.10), Laboratory tests (Table 2.11), and X-ray (Table 2.12).

Table 2.13 to 2.16 inclusive show the results of multivariate analyses of predictor valuables in relation to each of Practical Medicine: Examination (Table 2.13), Prescription (Table 2.14), Laboratory tests (Table 2.15), and X-ray (Table 2.16). Wanting an examination was not associated with any specific patient characteristics (Table 2.13). Those wanting a prescription were more likely to have travel time less than 14 mins. (Table 2.14). Those wanting laboratory tests were more likely to be over 65 years of age (Table 2.15). Those wanting X-ray were more likely to be men, over 65 years of age (Table 2.16).

Patients who wanted an examination, a prescription, laboratory tests and X-ray were more likely to prefer Communication, Partnership and Health Promotion (Table 2.17-2.20).

2.5 Discussion

Overarching finding of this study was that more vulnerable the patients (higher age, more anxiety and feeling more ill) expressed a greater preference for patient-centered Communication, Partnership and Health Promotion. Patients with a very strong preference for examination and prescription did not have any significant characteristics and those with a preference for laboratory tests and X-ray were those aged over 65.

2.5.1 Do patients want patient centeredness in Japan?

In general, more than 80% of patients wanted each factor of patient-centered medicine (PCM). Compared with Little et al.'s study, the preference for each factor of PCM was similar (81-95% Communication, 77-88% Partnership, and 86-92% Health Promotion versus 88-99%, 77-87% and 85-89% in Little et al.) (58). Rather unexpectedly, PCM was preferred by the patients living in Japan, which has different culture from Western countries, and this preference was on the same level with patients living in UK where Little et al.'s study was carried out.

2.5.2 What predicts who wants patient centeredness?

Compared with Little et al.'s study, we found different statistically significant associations of predictor variables with each factor of PCM as shown in Table 2.20. Regarding Communication, feeling worried showed an association in both studies, but other predictors (high attender, no paid work and age in Little et al.) were different. Regarding Partnership, feeling unwell and feeling worried show an association in both studies, but other predictors (no paid work in Little et al.) were different. Regarding Health Promotion, feeling worried showed an association in both studies, but other predictors (acute illness in the present study, and high attender in Little et al.) were different. Out of 3 factors, Partnership had more predictors which had associations in both studies than other 2 factors. Feeling worried had statistically significant associations with every factor in both studies.

The similarity of associations might be due to the universal property of patient-centered medicine for the vulnerable patients (more anxiety and feeling more ill) in 2 countries

even though they have different cultures and medical systems. The difference of associations might be due to the meaning of these variables in 2 countries. In UK, the average number of visits was lower than that in Japan (60), so high attenders may have had more significant health burdens. In Japan, patients with acute illness (which was not a variable used in Little et al.) may have had a similar meaning of burden. Considering this point, in Health Promotion, both studies had mostly the same results i.e. acute illness was significant in Japan and high attender was significant in the UK. Again, the burden implied by each of these variables may suggest an underlying interpretation. Patients with high perceived burden preferred Health Promotion.

Regarding no paid work, the difference of age distribution might have had a big effect on the finding that in Japan no paid work had no association with age. This study included more old patients (56.5% aged over 65 versus 18% in Little et al.) and the patients with no paid work might be mostly the retired persons.

2.5.3 Do the Japanese patients prefer examination, prescription and laboratory tests / X-ray?

The expectation for examination was similar to Little et al.'s (71% versus 64% in Little et al.'s), but that for prescription was clearly higher than Little et al.'s (73% versus 25% in Little et al.'s). The expectation for laboratory tests and X-ray seemed to be high (66% and 68%) because it was similar level with prescription, but it is not possible to compare with Little et al. because he did not measure laboratory tests or X-ray.

Compared with Little et al.'s study, we found different statistically significant associations of predictor variables with examination and prescription as shown in Table 2.21. Regarding Examination, our data showed no statistical associations, but Little et al. showed the association with 2 factors (educational level and feeling worried). Regarding Prescription, our data showed only one association with travel time, but Little et al. showed an association with 4 factors (marital status, partner in paid work or not, age, and low education).

According to these analyses, the preference for Practical Medicine in Japan was evident and higher than UK and it was not associated with specific characteristics of patients. However, the convenience of travel time less than 14 minutes may indicate the influence

of the medical system which is fee-for-service in Japan (55) versus capitation in the UK, the setting of Little et al.'s study.

2.5.4 Association of Patient-Centered Factors with Practical Medicine

The significant associations between the three Factors of the patients' preferences for Patient-centered care with Practical Medicine found in this study, were also found in Little et al. in the UK. This may imply that patients in both Japan and UK prefer both Patient-centered medicine and Practical Medicine. We could call this an integrated approach which is referred to in Stewart et al. especially in the following diagram shown in Figure 2.5 (5). Whereas Little et al.'s factor analyses separated Patient Centeredness from Practical Medicine, Stewart et al. integrate the two in what they call a Patient-Centered Clinical Method (5).

2.5.5 Limitations of this study

In this study, 6 local private primary care clinics giving ambulatory care by board-certified family doctors in Hokkaido province of Japan were selected. Of these, three practices were in urban area, so these patients could select their preferred clinics without any restriction. In this situation, patients who preferred patient-centered medicine might be more likely to be included in this study compared with patients in other clinics giving ambulatory care by general primary care doctors without board certification. This might have affected high preference for patient-centered medicine. But, in this study, the other three clinics in small towns were also included. In these towns, it is more difficult for the residents to select another clinic, so patients who were neutral about the preference for patient-centered medicine might be included. This fact might have decreased the effect in the urban practices and made the results more generalizable.

The patients included in this study may not be generalizable, especially because they appear to have low level of multi-morbidity.

The content and items used in this questionnaire were developed in UK, so the expressions asking about patient-centeredness were sometimes not common in Japan. A translation and back translation process were carried out, but nevertheless the subtle

meaning might not be translated correctly in some questions. However, the percentage of patients who preferred patient-centered medicine was similar in UK and Japan, so we can argue that any difference of meaning in both languages may not have affected the results. The response choices used by Little et al. included a 7-point response choice. Because very few UK respondents answered negatively, Little et al. reported only 5 categories. This led to the present study using a 5-point response choice. This decision may have led to the Japanese respondents showing higher scores then would have been the case with a 7-point Likert scale.

Figure 2.1 Study flow and eligible patients

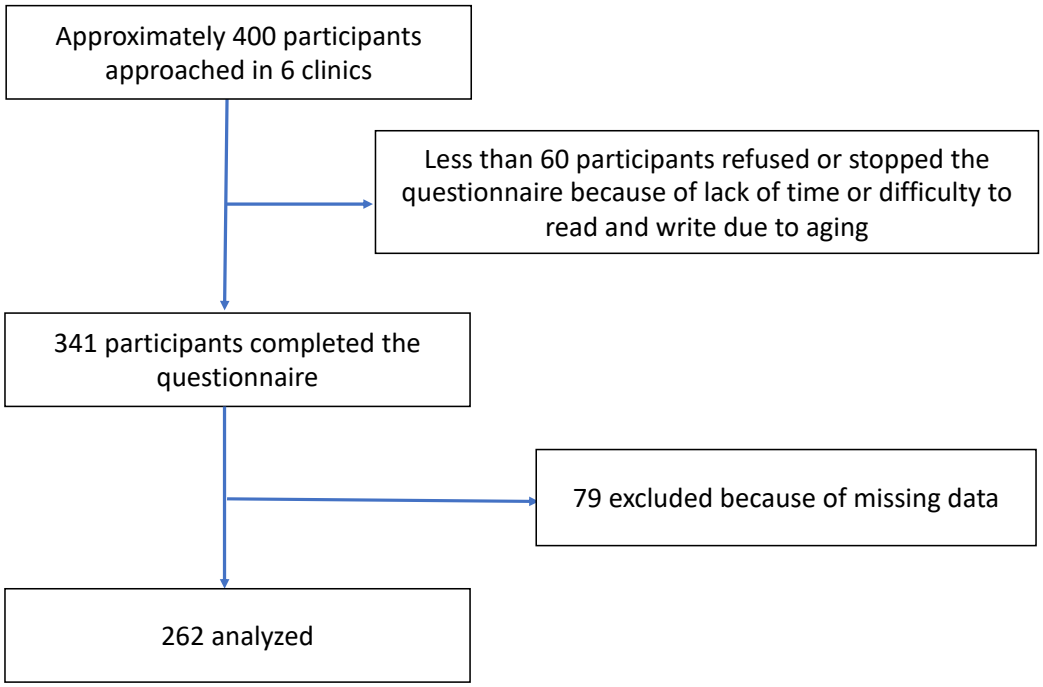


Figure 2.2 Frequency distribution of the scores of Factor 1 on Communication

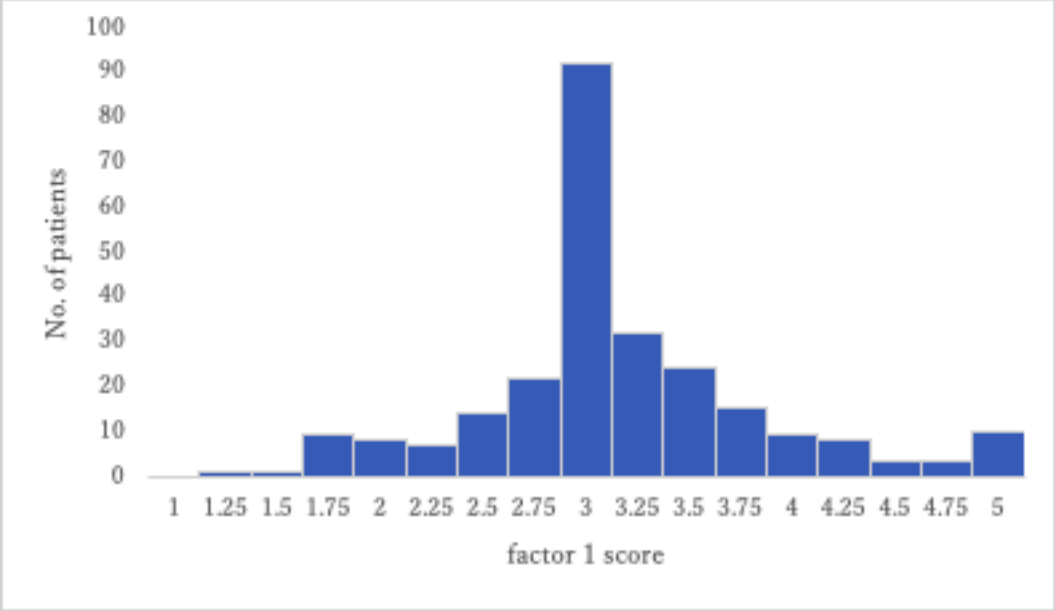


Figure 2.3 Frequency distribution of the scores of Factor 2 on Partnership

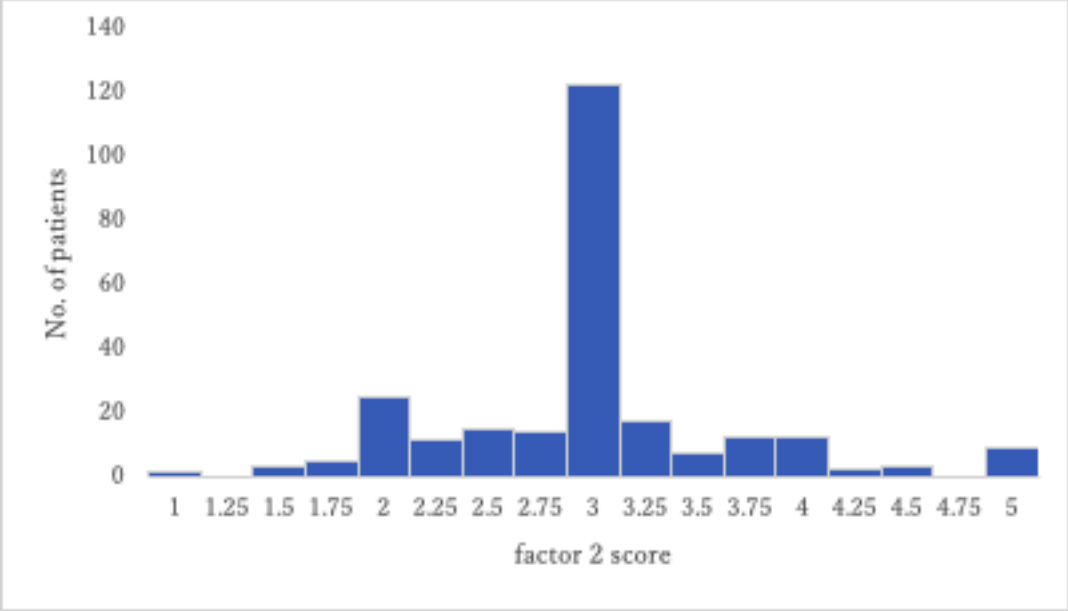


Figure 2.4 Frequency distribution of the scores of Factor 3 on Health Promotion

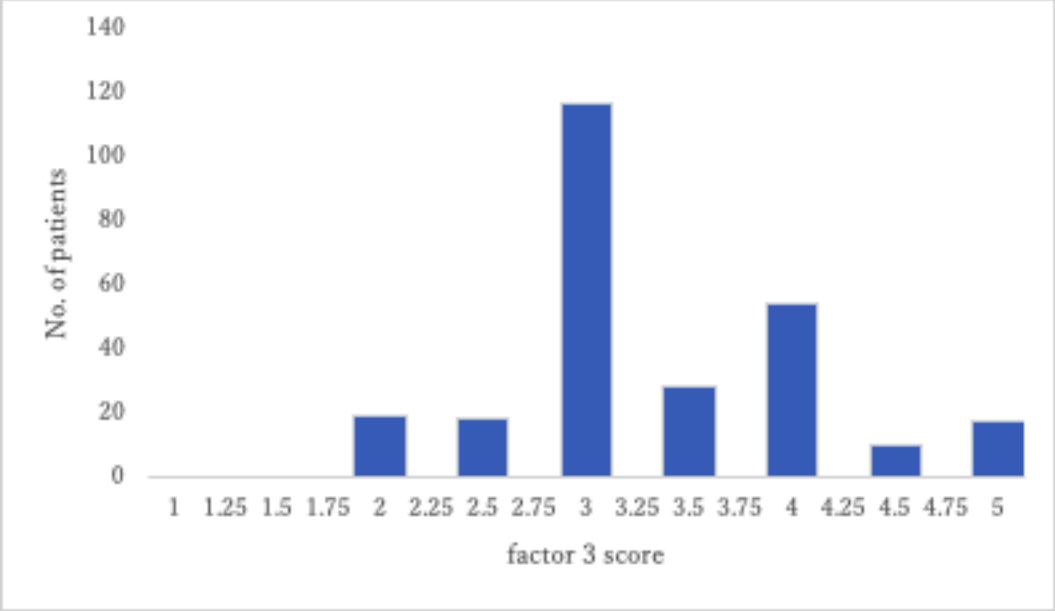


Figure 2.5 Exploring health, disease, and illness experience

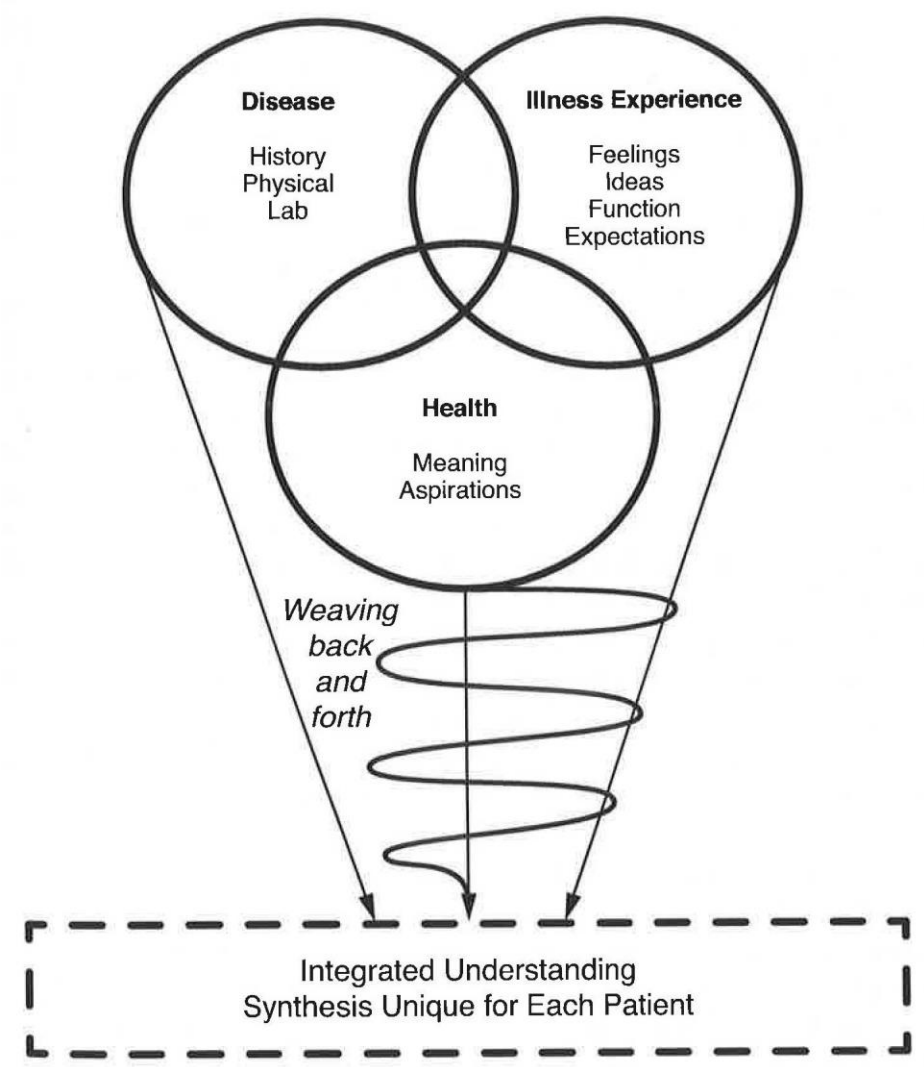


Table 2.1 Frequency distribution of all patient characteristics (n=262)

		Number	Percentage
Sex			
	Men	125	47.7%
	Female	137	52.3%
	Total	262	100.0%
Age			
	0–64	114	43.5%
	≧65	148	56.5%
	Total	262	100.0%
Family Structure			
	Other	199	78.0%
	Alone	56	22.0%
	Total	255*	100.0%
Paid Work			
	Paid work	138	52.9%
	No paid work	123	47.1%
	Total	261*	100.0%
Visiting years			
	5 years of less	104	43.2%
	≧6 years	137	56.8%
	Total	241*	100.0%
Travel times			
	14 min or less	135	51.9%
	≧15 min	125	48.1%
	Total	260*	100.0%
Medical problems			
	0–1	151	57.6%
	>2	111	42.4%
	Total	262	100.0%
Regular physician in charge			
	No	123	50.2%
	Yes	122	49.8%
	Total	245*	100.0%
Reason for visit			
	Regular	200	77.5%
	Acute illness	58	22.5%
	Total	258*	100.0%
Feeling unwell			
	Slightly/not	199	76.0%
	Very/Moderately	63	24.0%
	Total	262	100.0%
Feeling worried			

	Slightly/not	84	32.1%
	Very/Moderately	178	67.9%
	Total	262	100.0%

＊The number is lower than 262 because some patients did not respond to this item.

Table 2.2 What patients want from their general practitioner: descriptive data. Figures are numbers (percentage) of patients

Stem (unless specified): I want the doctor to …		very strongly agree		strongly agree		agree		Neutral/Disagree		Total
Factor 1 Communication: illness experience, communication, and doctor–patient relationship										
	Deal with my worries about the problem	26	(10%)	49	(19%)	151	(58%)	35	(13%)	261** (100%)
	Listen to everything I have to say about my problem	22	(8%)	36	(14%)	160	(61%)	43	(17%)	261** (100%)
	Be interested in what I want to know	18	(7%)	47	(18%)	160	(61%)	37	(14%)	262 (100%)
	Understand my main reason for coming	29	(11%)	46	(18%)	160	(61%)	26	(10%)	261** (100%)
	Be friendly and approachable	41	(16%)	65	(25%)	142	(54%)	14	(5%)	262 (100%)
	(Full question:) I want to feel really understood	18	(7%)	41	(16%)	152	(58%)	50	(19%)	261** (100%)
	Find out how serious my problem is	17	(6%)	46	(18%)	158	(60%)	41	(16%)	262 (100%)
	Clearly explain what the problem is	26	(10%)	73	(28%)	137	(52%)	25	(10%)	261** (100%)
	Clearly explain what should be done	21	(8%)	59	(22%)	159	(61%)	23	(9%)	262 (100%)
Factor 2 Partnership: interest in beliefs, expectations, and negotiating common ground										
	Be interested in what I think the problem is	17	(7%)	33	(13%)	165	(63%)	46	(17%)	261** (100%)
	Discuss and agree with me what the problem is	11	(4%)	31	(12%)	169	(65%)	50	(19%)	261** (100%)
	Be interested in what I want done	13	(5%)	37	(14%)	151	(58%)	61	(23%)	262 (100%)
	Be interested in what treatment I want	15	(6%)	42	(16%)	161	(62%)	42	(16%)	260** (100%)
	Discuss and agree with me on treatment	16	(6%)	44	(17%)	169	(65%)	33	(12%)	262 (100%)
Factor 3: Health Promotion										
	Give advice on how to reduce the risk of future illness	22	(8%)	83	(32%)	137	(52%)	20	(8%)	262 (100%)

	Give advice on how to stay healthy in future	23	(9%)	63	(24%)	140	(53%)	36	(14%)	262 (100%)
Other aspects of consultation desired										
	Practical medicine									
	Examine me fully	10	(4%)	20	(8%)	155	(59%)	77	(29%)	262 (100%)
	I want a prescription	12	(4%)	33	(13%)	146	(56%)	71	(27%)	262 (100%)
	(Original) Examine me by blood test or urine test	8	(3%)	32	(12%)	133	(51%)	88	(34%)	261** (100%)
	(Original) Examine me by X-ray	13	(5%)	24	(9%)	141	(54%)	83	(32%)	261** (100%)
	Give advice on what I can do	5	(2%)	20	(8%)	132	(50%)	104	(40%)	261** (100%)
	Appreciating the whole person									
	Understand my emotional needs	4	(1%)	20	(8%)	96	(37%)	142	(54%)	262 (100%)
	Be interested in how it (the problem) affects my life	15	(6%)	39	(15%)	166	(64%)	41	(15%)	261** (100%)

** The number is lower than 262 because some patients did not respond to this item.

Table 2.3 Result of bivariate analysis of Factor1 mean and variables

		Sample size	Mean value	t value	p value
Sex	Men	124	3.21	−0.55	0.29
	Female	134	3.26		
	Total	258*			
Age	0−64	114	3.23	−0.08	0.47
	≧65	144	3.24		
	Total	258*			
Family Structure	Others	197	3.24	0.26	0.60
	Alone	54	3.21		
	Total	251*			
Paid Work	Paid work	122	3.19	−0.95	0.17
	No paid work	135	3.27		
	Total	257*			
Visiting years	5 years of less	104	3.22	−0.70	0.24
	≧6 years	134	3.28		
	Total	238*			
Travel times	14 min or less	133	3.29	1.23	0.89
	≧15 min	123	3.18		
	Total	256*			
Medical problems	0−1	150	3.19	−1.31	0.10
	>2	108	3.30		
	Total	258*			
Regular physician in charge	No	122	3.22	0.20	0.58
	Yes	119	3.21		
	Total	241*			
Reason for visit	Regular	296	3.19	−2.04	0.02
	Acute illness	58	3.41		
	Total	254*			
Feeling unwell	Slightly/not	195	3.15	−3.20	0.00
	Very/Moderately	63	3.49		
	Total	258*			
Feeling worried	Slightly/not	82	2.95	−5.16	<.0001
	Very/Moderately	176	3.37		
	Total	258*			
Today's doctor	Others	146	3.25	0.31	0.62
	Director	110	3.22		
	Total	256*			
Consultation time	≧5mits	176	3.17	−0.96	0.17
	<5mins	79	3.26		
	Total	255*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.4 Result of bivariate analysis of Factor2 mean and variables

		Sample size	Mean value	t value	p value
Sex	Men	125	3.02	−0.80	0.21
	Female	133	3.09		
	Total	258*			
Age	0−64	113	2.97	−1.85	0.03
	≧65	145	3.12		
	Total	258*			
Family Structure	Others	196	3.03	−0.89	0.19
	Alone	55	3.12		
	Total	251*			
Paid Work	Paid work	122	3.09	−0.87	0.19
	No paid work	135	3.02		
	Total	257*			
Visiting years	5 years of less	102	3.02	−1.08	0.14
	≧6 years	135	3.11		
	Total	237*			
Travel times	14 min or less	134	3.10	1.04	0.85
	≧15 min	122	3.01		
	Total	256*			
Medical problems	0−1	149	3.01	−1.23	0.11
	>2	109	3.12		
	Total	258*			
Regular physician in charge	No	120	3.02	−0.66	0.26
	Yes	121	3.07		
	Total	241*			
Reason for visit	Regular	197	3.01	−2.04	0.02
	Acute illness	58	3.23		
	Total	255*			
Feeling unwell	Slightly/not	196	2.98	−3.27	0.00
	Very/Moderately	62	3.31		
	Total	258*			
Feeling worried	Slightly/not	82	2.85	−3.75	0.00
	Very/Moderately	176	3.15		
	Total	258*			
Today's doctor	Others	145	3.07	0.12	0.55
	Director	111	3.06		
	Total	256*			
Consultation time	≧5mits	176	2.99	−0.95	0.17
	<5mins	79	3.08		
	Total	255*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.5 Result of bivariate analysis of Factor3 mean and variables

		Sample size	Mean value	t value	p value
Sex	Men	125	3.37	0.67	0.75
	Female	137	3.31		
	Total	262			
Age	0-64	114	3.27	-1.29	0.10
	≧65	148	3.39		
	Total	262			
Family Structure	Others	199	3.35	0.38	0.65
	Alone	56	3.31		
	Total	255*			
Paid Work	Paid work	123	3.29	-0.99	0.16
	No paid work	138	3.38		
	Total	261*			
Visiting years	5 years of less	104	3.37	-0.03	0.49
	≧6 years	137	3.37		
	Total	241*			
Travel times	14 min or less	135	3.36	0.38	0.65
	≧15 min	125	3.33		
	Total	260*			
Medical problems	0-1	151	3.32	-0.38	0.35
	>2	111	3.36		
	Total	262			
Regular physician in charge	No	123	3.29	-0.81	0.21
	Yes	122	3.37		
	Total	245*			
Reason for visit	Regular	200	3.28	-2.08	0.02
	Acute illness	58	3.53		
	Total	258*			
Feeling unwell	Slightly/not	199	3.31	-1.10	0.14
	Very/Moderately	63	3.44		
	Total	262			
Feeling worried	Slightly/not	84	3.12	-3.68	0.00
	Very/Moderately	178	3.44		
	Total	262			
Today's doctor	Others	148	3.40	1.34	0.91
	Director	112	3.27		
	Total	260*			
Consultation time	≧5mits	180	3.23	-1.41	0.08
	<5mins	79	3.38		
	Total	259*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.6 Result of multivariable analysis of predictor variables in relation to Factor1 of patient-centered medicine – mixed model with fixed effects (n=246*)

Term	Estimate	Standard Error	t Ratio	p value (Prob>|t|)
Intercept	3.28	0.06	52.67	<.0001
Reason for visit Regular=2, Acute illness=1[1]	0.09	0.05	1.65	0.100
Feeling unwell Very/Moderately=1, Slightly/not=2[1]	0.10	0.05	1.86	0.063
Feeling worried Very/Moderately=1, Slightly/not=2[1]	0.17	0.05	3.67	0.0003
Site number [1]	0.15	0.10	1.57	0.117
Site number [2]	−0.10	0.08	−1.19	0.237
Site number [3]	−0.02	0.12	−0.16	0.870
Site number [4]	−0.01	0.10	−0.07	0.946
Site number [5]	0.02	0.09	0.21	0.834

* The number is lower than 262 because some patients did not respond to this item.

Table 2.7 Result of multivariable analysis of predictor variables in relation to Factor2 of patient-centered medicine - mixed model with fixed effects (n=246*)

Term	Estimate	Standard Error	t Ratio	p value (Prob>|t|)
Intercept	3.12	0.06	51.29	<.0001
Age 0-64=2, ≧65=1[1]	0.09	0.04	1.96	0.0509
Reason for visit Regular=2, Acute illness=1[1]	0.10	0.05	1.93	0.0550
Feeling unwell Very/Moderately=1, Slightly/not=2[1]	0.12	0.05	2.29	0.0231
Feeling worried Very/Moderately=1, Slightly/not=2[1]	0.11	0.05	2.29	0.0227
Site number [1]	0.12	0.10	1.27	0.2037
Site number [2]	−0.07	0.08	−0.80	0.4226
Site number [3]	−0.10	0.11	−0.84	0.3996
Site number [4]	−0.09	0.10	−0.91	0.3651
Site number [5]	0.07	0.09	0.78	0.4355

* The number is lower than 262 because some patients did not respond to this item.

Table 2.8 Result of multivariable analysis of predictor variables in relation to Factor3 of patient-centered medicine - mixed model with fixed effects (n=251*)

Term	Estimate	Standard Error	t Ratio	p value (Prob>|t|)
Intercept	3.35	0.06	55.3	<.0001
Reason for visit Regular=2, Acute illness=1[1]	0.12	0.06	2.12	0.0347
Feeling worried Very/Moderately=1, Slightly/not=2[1]	0.15	0.05	3.13	0.0020
Site number [1]	0.10	0.11	0.93	0.3508
Site number [2]	−0.03	0.09	−0.30	0.7651
Site number [3]	0.05	0.13	0.38	0.7032
Site number [4]	−0.21	0.10	−1.99	0.0479
Site number [5]	0.08	0.10	0.83	0.4065

* The number is lower than 262 because some patients did not respond to this item.

Table 2.9 Result of bivariate analysis of Examination and variables

		Total	Number of patients who want	Percentage	p value
Sex	Men	125	85	68.00%	0.3334
	Female	136	88	64.71%	
		261*			
Age	0-64	114	71	62.28%	0.1418
	≧65	147	102	69.39%	
		261*			
Family Structure	Others	199	132	66.33%	0.5117
	Alone	55	36	65.45%	
		254*			
Paid Work	No paid work	137	93	67.88%	0.3117
	Paid work	123	79	64.23%	
		260*			
Visiting years	5 years of less	104	66	63.46%	0.2166
	≧6 years	136	94	69.12%	
		240*			
Travel times	14 min or less	135	91	67.41%	0.6868
	≧15 min	124	81	65.32%	
		259*			
Medical problems	0-1	151	96	63.58%	0.1708
	>2	110	77	70.00%	
		261*			
Regular physician in charge	No	123	76	61.79%	0.0807
	Yes	121	86	71.07%	
		244*			
Reason for visit	Regular	199	126	63.32%	0.0507
	Acute illness	58	44	75.86%	
		257*			
Feeling unwell	Slightly/not	198	128	64.65%	0.2016
	Very/Moderately	63	45	71.43%	
		261*			
Feeling worried	Slightly/not	83	47	56.63%	0.0179
	Very/Moderately	178	126	70.79%	
		261*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.10 Result of bivariate analysis of Prescription and variables

		Total	Number of patients who want	Percentage	p value
Sex	Men	125	85	68.00%	0.5263
	Female	136	93	68.38%	
		261*			
Age	0–64	114	68	59.65%	0.0067
	≧65	147	110	74.83%	
		261*			
Family Structure	Others	199	130	65.33%	0.0809
	Alone	55	42	76.36%	
		254*			
Paid Work	No paid work	138	102	73.91%	0.0220
	Paid work	122	75	61.48%	
		260*			
Visiting years	5 years of less	103	73	70.87%	0.6972
	≧6 years	137	94	68.61%	
		240*			
Travel times	14 min or less	134	98	73.13%	0.0566
	≧15 min	125	79	63.20%	
		259*			
Medical problems	0–1	150	100	66.67%	0.3151
	>2	111	78	70.27%	
		261*			
Regular physician in charge	No	123	83	67.48%	0.4253
	Yes	121	84	69.42%	
		244*			
Reason for visit	Regular	199	137	68.84%	0.6557
	Acute illness	58	39	67.24%	
		257*			
Feeling unwell	Slightly/not	199	132	66.33%	0.1575
	Very/Moderately	62	46	74.19%	
		261*			
Feeling worried	Slightly/not	84	55	65.48%	0.3040
	Very/Moderately	177	123	69.49%	
		261*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.11 Result of bivariate analysis of Laboratory tests and variables

		Total	Number of patients who want	Percentage	p value
Sex	Men	124	79	63.71%	0.1611
	Female	137	78	56.93%	
		261*			
Age	0-64	114	50	43.86%	<.0001
	≧65	147	107	72.79%	
		261*			
Family Structure	Others	198	116	58.59%	0.8216
	Alone	56	36	64.29%	
		254*			
Paid Work	No paid work	137	95	69.34%	0.0009
	Paid work	123	61	49.59%	
		260*			
Visiting years	5 years of less	103	55	53.40%	0.0085
	≧6 years	137	95	69.34%	
		240*			
Travel times	14 min or less	135	79	58.52%	0.3227
	≧15 min	124	77	62.10%	
		259*			
Medical problems	0-1	150	85	56.67%	0.1131
	>2	111	72	64.86%	
		262*			
Regular physician in charge	No	123	70	56.91%	0.2092
	Yes	121	76	62.81%	
		244*			
Reason for visit	Regular	199	117	58.79%	0.2219
	Acute illness	58	38	65.52%	
		257*			
Feeling unwell	Slightly/not	198	116	58.59%	0.2216
	Very/Moderately	63	41	65.08%	
		261*			
Feeling worried	Slightly/not	84	46	54.76%	0.1379
	Very/Moderately	177	111	62.71%	
		261*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.12 Result of bivariate analysis of X-ray and variables

		Total	Number of patients who want	Percentage	p value
Sex	Men	125	65	52.00%	0.0359
	Female	137	55	40.15%	
		262			
Age	0–64	114	38	33.33%	0.0003
	≧65	148	82	55.41%	
		262			
Family Structure	Others	199	87	43.72%	0.1790
	Alone	56	29	51.79%	
		255*			
Paid Work	No paid work	138	69	50.00%	0.0823
	Paid work	123	50	40.65%	
		261*			
Visiting years	5 years of less	104	44	42.31%	0.0909
	≧6 years	137	71	51.82%	
		241*			
Travel times	14 min or less	135	58	42.96%	0.2063
	≧15 min	125	61	48.80%	
		260*			
Medical problems	0–1	151	66	43.71%	0.2522
	>2	111	54	48.65%	
		262			
Regular physician in charge	No	123	50	40.65%	0.0898
	Yes	122	61	50.00%	
		245*			
Reason for visit	Regular	200	89	44.50%	0.2770
	Acute illness	58	29	50.00%	
		258*			
Feeling unwell	Slightly/not	199	86	43.22%	0.0890
	Very/Moderately	63	34	53.97%	
		262			
Feeling worried	Slightly/not	84	30	35.71%	0.0167
	Very/Moderately	178	90	50.56%	
		262			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.13 Result of multivariable analysis of predictor variables in relation to Examination – logistic regression (n=241*)

Term	Estimate	Standard Error	ChiSq	p value (Prob>ChiSq)
Intercept	0.78	0.20	15.86	<.0001
Regular physician in charge Yes=1, No=2[1]	0.27	0.15	3.36	0.0669
Reason for visit Regular=2, Acute illness=1[1]	0.31	0.19	2.75	0.0970
Feeling worried Very/Moderately=1, Slightly/not=2[1]	0.23	0.15	2.43	0.1187
Site number [1]	0.13	0.32	0.17	0.6818
Site number [2]	−0.07	0.28	0.06	0.8021
Site number [3]	−0.48	0.38	1.60	0.2061
Site number [4]	0.17	0.33	0.26	0.6098
Site number [5]	0.47	0.32	2.11	0.1465

* The number is lower than 262 because some patients did not respond to this item.

Table 2.14 Result of multivariable analysis of predictor variables in relation to Prescription – logistic regression (n=251*)

Term	Estimate	Standard Error	ChiSq	p value (Prob>ChiSq)
Intercept	0.73	0.19	14.49	<.0001
Age 0-64=2, ≧65=1[1]	0.30	0.17	2.92	0.0873
Family structure Alone=1, Other=2[1]	0.06	0.20	0.08	0.7709
Paid work Yes=2, No=1[1]	0.24	0.17	1.90	0.1680
Travel time 14 min or less=2,15min or more=1[1]	−0.36	0.15	6.12	0.0134
Site number [1]	−0.45	0.31	2.07	0.1504
Site number [2]	0.28	0.29	0.91	0.3411
Site number [3]	−0.84	0.39	4.68	0.0306
Site number [4]	0.13	0.33	0.17	0.6836
Site number [5]	0.11	0.30	0.13	0.7208

* The number is lower than 262 because some patients did not respond to this item.

Table 2.15 Result of multivariable analysis of predictor variables in relation to Laboratory tests – logistic regression (n=239*)

Term	Estimate	Standard Error	ChiSq	p value (Prob>ChiSq)
Intercept	0.46	0.15	9.66	0.0019
Age 0-64=2, ≧65=1[1]	0.57	0.18	10.16	0.0014
Paid work Yes=2, No=1[1]	0.03	0.17	0.03	0.8603
Visiting years 5 years of less=2,6 years or more=1[1]	0.14	0.15	0.83	0.3621
Site number [1]	−0.56	0.31	3.28	0.0702
Site number [2]	−0.13	0.29	0.20	0.6527
Site number [3]	0.04	0.42	0.01	0.9144
Site number [4]	0.31	0.22	0.89	0.3454
Site number [5]	0.14	0.30	0.23	0.6308

* The number is lower than 262 because some patients did not respond to this item.

Table 2.16 Result of multivariable analysis of predictor variables in relation to X-ray – logistic regression (n=226*)

Term	Estimate	Standard Error	ChiSq	p value (Prob>ChiSq)
Intercept	−0.15	0.20	0.55	0.4584
Female Yes=1, No=2[1]	−0.32	0.15	4.55	0.0329
Age 0-64=2, ≧65=1[1]	0.51	0.19	6.96	0.0083
Paid work Yes=2, No=1[1]	−0.14	0.19	0.58	0.4469
Visiting years 5 years of less=2,6 years or more=1[1]	0.07	0.15	0.21	0.6467
Regular physician in charge Yes=1, No=2[1]	0.09	0.15	0.35	0.5542
Feeling unwell Very/Moderately=1, Slightly/not=2[1]	0.28	0.18	2.41	0.1202
Feeling worried Very/Moderately=1, Slightly/not=2[1]	0.25	0.16	2.35	0.1255
Site number [1]	−0.44	0.32	1.89	0.1688
Site number [2]	−0.10	0.31	0.11	0.7450
Site number [3]	0.22	0.42	0.27	0.6053
Site number [4]	0.03	0.34	0.01	0.9206
Site number [5]	0.42	0.31	1.86	0.1727

* The number is lower than 262 because some patients did not respond to this item.

Table 2.17 Result of bivariate analysis of Factor1 (Communication) mean of Patient-centered medicine and Practical Medicine

		Number	Mean value	t value	p value
Examination	Want	171	3.43	−6.71	<.0001
	Don't want	86	2.86		
	Total	257*			
Prescription	Want	174	3.37	−4.79	<.0001
	Don't want	83	2.95		
	Total	257*			
Lab test	Want	153	3.35	−3.33	0.0010
	Don't want	104	3.07		
	Total	257*			
X-ray	Want	118	3.38	−3.08	0.0023
	Don't want	140	3.12		
	Total	258*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.18 Result of bivariate analysis of Factor2 (Partnership) mean of Patient-centered medicine and Practical Medicine

		Number	Mean value	t value	p value
Examination	Want	172	3.27	−7.94	<.0001
	Don't want	85	2.63		
	Total	257*			
Prescription	Want	177	3.20	−5.25	<.0001
	Don't want	80	2.75		
	Total	257*			
Lab test	Want	157	3.20	−4.35	<.0001
	Don't want	100	2.84		
	Total	257*			
X-ray	Want	120	3.23	−3.94	0.0001
	Don't want	138	2.91		
	Total	258*			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.19 Result of bivariate analysis of Factor3 (Health Promotion) mean of Patient-centered medicine and Practical Medicine

		Number	Mean value	t value	p value
Examination	Want	173	3.55	−6.86	<.0001
	Don't want	88	2.93		
	Total	261*			
Prescription	Want	178	3.48	−4.49	<.0001
	Don't want	83	3.05		
	Total	261*			
Lab test	Want	157	3.47	−3.64	0.0003
	Don't want	104	3.14		
	Total	261*			
X-ray	Want	120	3.48	−2.74	0.01
	Don't want	142	3.23		
	Total	262			

* The number is lower than 262 because some patients did not respond to this item.

Table 2.20 Comparison with Little et al.'s study about the predictor variables which had statistically significant association with each component of PCM

	The present study	Little et al.'s study
Communication	Feeling worried	High attender No paid work Feeling worried Age
Partnership	Feeling unwell Feeling worried	No paid work Feeling unwell Feeling worried
Health Promotion	Acute illness Feeling worried	High attender Feeling worried

Table 2.21 Comparison with Little et al.'s study about the predictor variables which had statistically significant association with Practical Medicine

	The present study	Little et al.'s study
Examination	No factors	Low education level Feeling worried
Prescription	Travel time less than 14 mins	No married or living as married Partner not in paid work Age Low education

Chapter 3

3 Japanese patients' satisfaction with the consultation in Japanese family practice

In this chapter, another research question raised in Chapter 1 is explored, that is Japanese patients' satisfaction with the consultation by a sample of board-certified family doctors in Japan and its association with the patients' characteristics.

3.1 Background

Family medicine / Primary care is relatively new independent medical specialty in Japan whose significance has increased because of Japan's rapidly aging population (50, 51). It is, therefore, timely to assess such a new specialty early in its development. A key aspect of such an assessment is the degree of patients' satisfaction with the care offered by the new specialty.

According to the systematic reviews worldwide, relevant to patient satisfaction, patient satisfaction was improved by better communication style (27), longer consultation length (28), more sustained continuity of care (29), increased patients' participation of medical consultation (30) and decreased EMR use in consultation (31). In addition, patient satisfaction was related to accessibility, patient empowerment, practice style and patient-centeredness (16-19).

None of the studies included in these systematic reviews were conducted in Japan, nor were they conducted in family practice. So, we need more evidence about the patient satisfaction in Japan.

3.2 Objective

The study assessed patients' satisfaction with the doctors' consultation and its association with the patients' characteristics.

3.3 Method

3.3.1 Design

Cross-sectional study

3.3.2 Setting and practices (The reader will note that the method's section is the same as in Chapter 2, except for the research question, the outcome variable and the analysis)

We chose 6 local private primary care clinics giving ambulatory care by board-certified family doctors in Hokkaido province of Japan. They were also training practices in the residency program of family medicine and supportive for academic work including primary care research. The six practices selected represented a range of settings to ensure that the impact of demographic factors on patient preference could be assessed. Two practices were in residential areas of a middle-size provincial city; one practice was serving urban population of megalopolis; three practices were in small towns known for agriculture, fishing and sightseeing.

3.3.3 Research questions

1. Are the Japanese patients satisfied with the consultation in Japanese Family Practice?

2. Is there an association (correlation) between patients' satisfaction and the patients' characteristics?

3.3.4 The factors: Patient Characteristics

In the questionnaire delivered to patients, the following six items describing patient characteristics were included: socio-demographic details (sex, age, paid work, family construct), nature of presenting problem, number of medical problems, reason for visit, how unwell the patients were feeling, and how worried they were about the problem (on

5-point Likert scale) (58) . The following four items were included based on the author's experience in Japanese medical system: length of relationship with practice, travel time to a practice from their house, usual main doctor's type (the doctor was the director of the clinic or not.), and doctor's type on that day and consultation time.

3.3.5 The outcome: Questionnaire

A questionnaire by Takemura was selected to assess the level of the patients' satisfaction for use in this study (61).

3.3.5.1 Items and Response choices

This questionnaire asked the patients to indicate their satisfaction with their consultation on a 5-point Likert scale (strongly agree, agree, uncertain, disagree, strongly disagree) with items about overall satisfaction (2), complete examination (2), whole person care (2), examination time (3), and patient centeredness (3). There were 12 items in total, see the Table 3.1.

3.3.5.2 Validity and reliability

This questionnaire's validity was evaluated by factor analysis (Cronbach's α between 0.77 and 0.85 depending on the subscale) and its reliability was also checked by test-retest (correlation between 0.59 and 0.96 depending on the item) (61).

3.3.5.3 Translation

Takemura's questionnaire exists in Japanese (62) and English (61). These were translations that were used in this study.

3.3.6 Inclusion and exclusion criteria

Patients were Japanese, 20 to 85 years old, no dementia, not pregnant, without disability with regard to writing and without an urgent problem.

3.3.7 Pilot study

The draft questionnaires were piloted among 40 patients. Some parts of questionnaire were not answered correctly because of poor appearance of sentences and layout. And questions on some pages were completely unanswered by some patients because they could only see one side of paper printed on both sides. Some sentences of questions were criticized as being difficult to understand. According to these results of pilot study, we revised the questionnaire to be answered more easily and clearly.

3.3.8 Ethics

Both the main study and pilot study had ethical approval from Japan Primary Care Association research ethics committees. A poster about the purpose and contents of this study was shown on the wall of waiting room and gave patients the chance to refuse to participate in this study, as well as the possibility of verbal refusal to the research assistant.

3.3.9 Data collection

We recruited consecutive patients in the waiting room. The clerks and nurses checked the patient's compatibility with the inclusion criteria and selected research participants for the research assistant. The research assistant explained the general information about the study to the patient. At the end of the visit, patients completed the questionnaire on patients' satisfaction (the post-consultation questionnaire). The research assistant observed this process and supported patients if needed.

3.3.10 Sample size

In the pilot study, a difference of the overall satisfaction between the group who felt healthy and the group who felt not healthy was found. This difference of score was 0.61 (the former group score was 6.14 and the latter was 5.53), the standard deviation on average was 1.34 and E/S was therefore 0.46. So according to the sample size calculation condition (α=0.05, β=0.2) (59), we calculated that we needed 128 patients per group.

3.3.11 Analysis

The total satisfaction score was the sum of 12 items, using 5 for “Strongly agree”, 4 for “Agree”, 3 for “Uncertain”, 2 for “Disagree” and 1 for “Strongly disagree” (61). But, the items about examination time are negatively worded, and each of them was therefore scored in the reverse order. We evaluated the association between patients’ characteristics and satisfaction for consultation using bivariate analysis using the t test. The multivariate analysis used the program JMP Pro (based on SAS) and conducted a test of mixed model with fixed effects (Appendix 1).

3.4 Results

About 400 patients were recruited to answer the questionnaire, and less than 60 patients refused (approximately 15%) because of lack of time difficulty to read and write due to aging. So, 341 patients answered post-consultation questionnaires. Of 341 questionnaires, 79 (23.2%) were excluded because of lack of data on more than 3 items of all 49 items and 262 (76.8%) were used for the analysis (Fig 3.1).

3.4.1 Patient characteristics

Table 3.1 shows the patient characteristics. As noted in Chapter 2, these characteristics were compared to those of a national survey and found to be similar on sex, age and family structure. And other characteristics including work, average number of years visiting the doctor, average travel time to clinics, average number of medical problems,

their usual physician in charge, the reason for today's visit, feeling well or not and feeling worried or not are the same as those in Chapter 2.

Half of the time, the doctors in charge at the consultation were director (43% versus 16% deputy director and 41% other doctors) and consultation time at the consultation was mostly 5-15 mins (61% versus 31% below 6mins, 7% 15-30 mins and 2% above 30 mins).

3.4.2 Main results

Table 3.2 shows patients' satisfaction with the consultation for 12 items in the questionnaire.

Figure 3.2 shows the total satisfaction score. The mean value of total satisfaction score was 46.1. We can see the distribution was very similar to a normal distribution with the most frequent score as 45.

Table 3.3 shows the results of bivariate analyses for all patient characteristics in association with total satisfaction score. Patient characteristics that showed p-values of less than or equal to 0.05 were included into the multivariate analyses which follows. We decided to use the more rigorous cut-off in contrast to our decision in Chapter 2, which was based on the Little et al. study relevant to that chapter.

Table 3.4 shows the results of multivariate analyses of predictor valuables in relation to the total satisfaction score. The groups of patients who were strongly satisfied with the consultation were more likely to be women, consulted by directors, and have less than 5 minutes of consultation time.

The satisfaction score was not related to patients' age, family structure, whether they have paid work or not, visiting years, the number of medical problems, whether regular physician was in charge or not, reason for visit, feeling unwell or not, feeling worried or not, and today's doctor was director or not.

3.5 Discussion

Overarching finding of this study was that many patients were satisfied with the consultation provided by the sample of board-certified family doctors in primary care

clinics, because the mean value of total satisfaction score was 46 which indicated that the average score of 12 items was 3.83 between 3 (agree), 4 (strongly agree), and 5 (very strongly agree).

Compared with Takemura's study (See Table 3.5), the mean scores of 4 of 5 components (Overall satisfaction, Complete examination, Examination time and Patient centeredness) were mostly similar, but that of Whole person care looked higher in the present study (7.02 versus 5.90 in Takemura's). In Takemura's study, not only family doctors but also medical students saw study patients and the setting was the university hospital. These differences might have influenced their lower satisfaction with Whole person care.

3.5.1 What type of patients were more satisfied with the consultations?

Patients who were consulted by directors had stronger satisfaction with the consultation than those who were consulted by other doctors, possibly because the directors of the clinics tended to be more experienced than the other doctors.

Patients whose length of consultation was less than 5 minutes were more satisfied in our study in spite of the fact that systematic reviews showed longer consultation length was associated with higher satisfaction (28). One possible methodological reason why this finding could have occurred, may be the reverse coding of the length of consultation item within the total satisfaction score, but the coding process was proved to be correct based on the recheck of data and the analytic process. Another reason may have been because the patients perceived consultation time was not the actual time measured by a stop watch. Patients have been found to feel less satisfied with longer visits after a certain threshold (63), so the threshold in Japan might be short time and patients whose length of consultation more than 5 minutes could, therefore, be less satisfied.

Regarding sex, female patients showed higher satisfaction, but a similar tendency cannot be found in the 26 systematic reviews of patient satisfaction (Table 3.6). Also, in one study dealing with the association of sex with patient satisfaction, there was no association between sex and satisfaction (64). But, in another study dealing with patients' sex and doctors' sex and its effect on patient satisfaction, male patients examined by younger female physicians reported the lowest ratings of satisfaction (65). In our study,

20 of the 24 doctors were male and 4 were female, and the proportion of sex of patients was almost 50:50. So, it is not likely that the present study's finding can be explained by the percentage of female physicians.

The differences between the present study and the current world literatures could be due to the different methods and measures used in the studies or they could be due to the uniqueness of the features in Japanese health care and society.

3.5.2 Comparison with the similar study in Japan

There is only one study which assessed patients' satisfaction with the family practice in Japan (54). Table 3.7 compares the present study with Kisa et al. We see some similarities in the characteristics' distributions: age; number of episodes; region of Japan. Differences were: sex (present study had fewer females); regular/routine visit (present study contained more regular visits); number of doctors (more in present study); training of doctors (board certified family physicians in present study); dimensions of satisfaction studied (different questionnaire used in the two studies).

The associations of patient characteristics and patient satisfaction were quite different in the two studies probably because each studied different dimensions of patient satisfaction. In addition, in the present study, the prevalence of total satisfaction score was a normal distribution (Figure 3.2), but the prevalence of overall satisfaction score of Kisa et al. was not normal distribution (41.8% of patients were 100% satisfied about all scores). So, it was difficult to compare these results with the present study's results due to the measure of patient satisfaction.

3.5.3 Limitations of this study

In this study, 6 local private primary care clinics providing ambulatory care by board-certified family doctors in Hokkaido province of Japan were selected. In Japan, there are 800 board-certified family doctors among about 100,000 primary care doctors in Japan, so their practice itself is likely unique. Therefore, the results are not generalizable to all

Primary care doctors in Japan, but may be more generalizable to the 800 board-certified subgroup of family doctors. Nonetheless, generalizability cannot be assumed.

3.6 Conclusion

Japanese patients scored their consultations to be relatively high, even higher than a previous study in Japan on the dimension of Whole Person Care. The characteristics associated with patient satisfaction were, although somewhat unexpected, interesting and helpful in planning for improved services.

Figure 3.1 Study flow and eligible patients

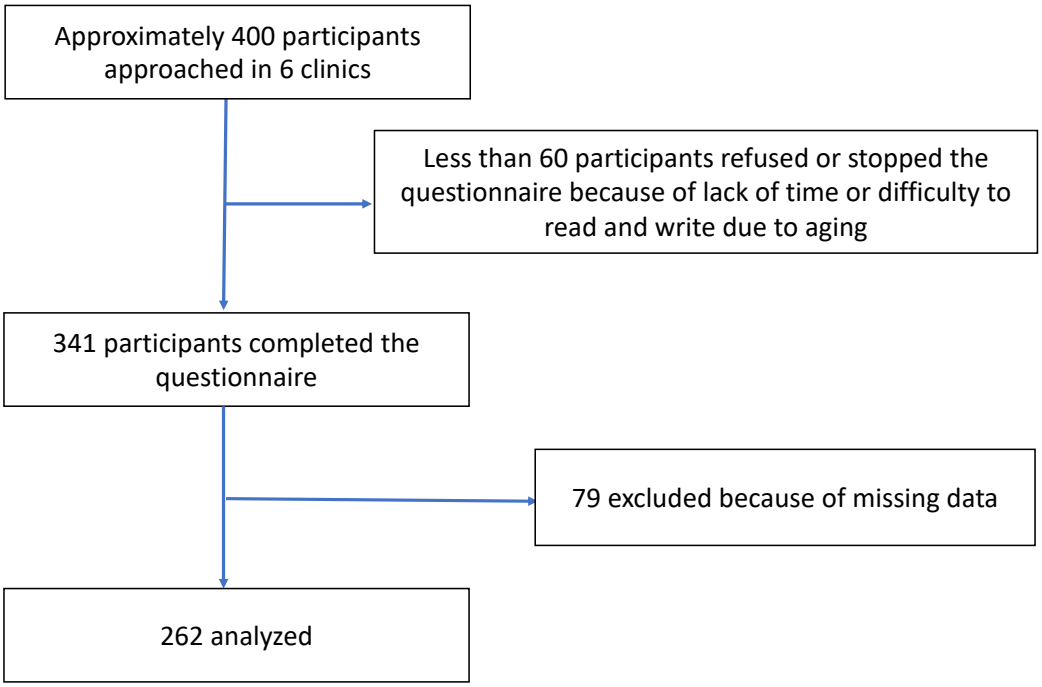


Figure 3.2 Frequency distribution of the total satisfaction score

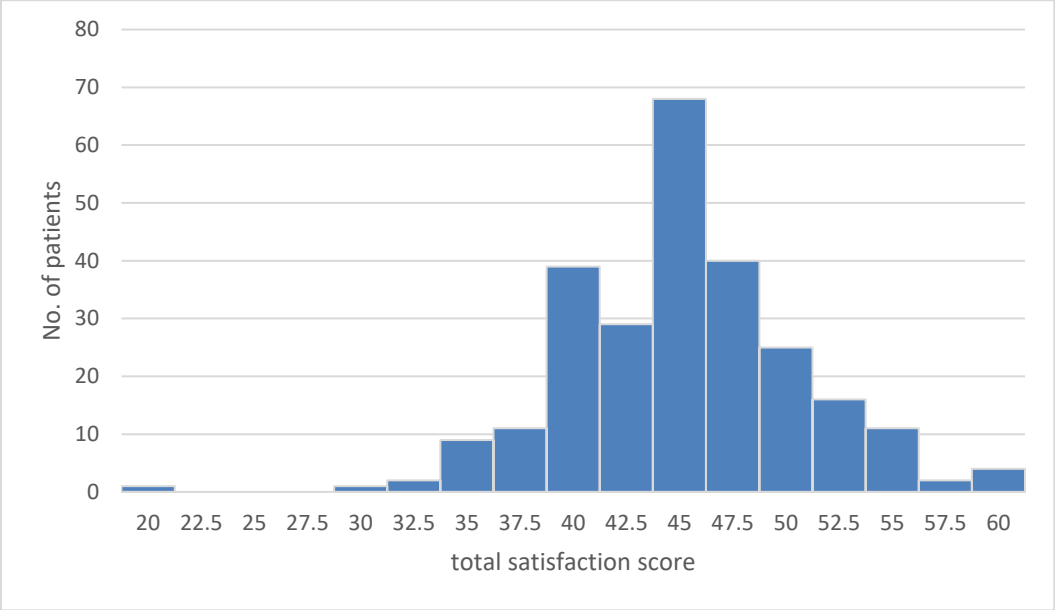


Table 3.1 Frequency distribution of all patient characteristics and part of the results (n=262)

		Number	Percentage
Sex			
	Men	125	47.7%
	Female	137	52.3%
	Total	262	100.0%
Age			
	0-64	114	43.5%
	≧65	148	56.5%
	Total	262	100.0%
Family Structure			
	Other	199	78.0%
	Alone	56	22.0%
	Total	255*	100.0%
Paid Work			
	Paid work	138	52.9%
	No paid work	123	47.1%
	Total	261*	100.0%
Visiting years			
	5 years of less	104	43.2%
	≧6 years	137	56.8%
	Total	241*	100.0%
Travel times			
	14 min or less	135	51.9%
	≧15 min	125	48.1%
	Total	260*	100.0%
Medical problems			
	0-1	151	57.6%
	≧2	111	42.4%
	Total	262	100.0%
Regular physician in charge			
	No	123	50.2%
	Yes	122	49.8%
	Total	245*	100.0%
Reason for visit			
	Regular	200	77.5%
	Acute illness	58	22.5%
	Total	258*	100.0%
Feeling unwell			
	Slightly/not	199	76.0%
	Very/Moderately	63	24.0%
	Total	262	100.0%

Feeling worried			
	Slightly/not	84	32.1%
	Very/Moderately	178	67.9%
	Total	262	100.0%
Doctor in charge at the consultation			
	Others	148	56.9%
	Director	112	43.1%
	Total	260*	100
Consultation time			
	above 5mins	180	69.5%
	below 5mins	79	30.5%
	Total	259*	100.0%

* The number is lower than 262 because some patients did not respond to this item.

Table 3.2 Patients' satisfaction with the consultation: descriptive data. Figures are numbers (percentage) of patients

	very strongly agree(5)		strongly agree (4)		agree(3)		Neutral(2) /Disagree (1)		Total
Factor: Overall satisfaction									
I am very satisfied with the medical consultation that I had today.	86	(33%)	147	(56%)	27	(10%)	2	(1%)	262 (100%)
The medical consultation that I had today has better point(s) than those of other doctors.	37	(14%)	116	(44%)	103	(40%)	6	(2%)	262 (100%)
Factor: Complete examination									
This doctor examined me carefully and completely.	44	(17%)	176	(67%)	39	(15%)	3	(1%)	262 (100%)
This doctor examined me perfectly.	29	(11%)	180	(69%)	43	(17%)	8	(3%)	260** (100%)
Factor: Whole person care									
This doctor knows almost everything about me.	17	(7%)	119	(46%)	95	(36%)	30	(11%)	261** (100%)
I think that this doctor really knows how I think.	16	(6%)	136	(52%)	92	(35%)	18	(7%)	262 (100%)
Factor: Examination time									
The time for the medical consultation with me was not long enough to deal with everything I wanted. *	38	(15%)	116	(44%)	71	(27%)	37	(14%)	262 (100%)
I wonder if this doctor could have spent a little longer time with me. *	38	(15%)	133	(51%)	73	(28%)	18	(7%)	262 (100%)
The time for the medical consultation with me was a little bit too short. *	37	(14%)	149	(57%)	66	(25%)	10	(4%)	262 (100%)
Factor: Patient centeredness									
This doctor listened to my ideas.	47	(18%)	194	(74%)	20	(7%)	1	(1%)	262 (100%)
This doctor listened to what I want him/her to do.	46	(18%)	181	(69%)	34	(13%)	0	(0%)	261** (100%)
I think that this doctor is very honest.	56	(21%)	170	(65%)	34	(13%)	2	(1%)	262 (100%)

	* These items are negatively worded, and each of them is scored in the reversed order.	

** The number is lower than 262 because some patients did not respond to this item.

Table 3.3 Result of bivariate analysis of total satisfaction score mean and variables

		Sample size	Mean value	t value	p value
Sex	Men	123	45.35	−1.99	0.02
	Female	135	46.72		
	Total	258*			
Age	0−64	112	44.94	−2.85	0.47
	≧65	146	46.93		
	Total	258*			
Family Structure	Others	197	45.95	−0.75	0.23
	Alone	54	46.59		
	Total	251*			
Paid Work	Paid work	121	45.57	−1.27	0.10
	No paid work	136	46.45		
	Total	257*			
Visiting years	5 years of less	102	45.79	−0.71	0.24
	≧6 years	136	46.31		
	Total	238*			
Travel times	14 min or less	132	45.34	−2.34	0.01
	≧15 min	124	46.93		
	Total	256*			
Medical problems	0−1	148	45.88	−0.64	0.26
	>2	110	46.32		
	Total	258*			
Regular physician in charge	No	120	45.12	−2.22	0.01
	Yes	121	46.68		
	Total	241*			
Reason for visit	Regular	196	46.06	−0.07	0.47
	Acute illness	58	46.12		
	Total	254*			
Feeling unwell	Slightly/not	196	46.06	−0.05	0.48
	Very/Moderately	62	46.10		
	Total	258*			
Feeling worried	Slightly/not	82	46.04	−0.06	0.47
	Very/Moderately	176	46.08		
	Total	258*			
Today's doctor	Others	147	45.52	−1.87	0.03
	Director	109	46.81		
	Total	256*			
Consultation time	≧5mits	176	43.29	−5.49	<.0001
	<5mins	79	47.31		
	Total	255*			

* The number is lower than 262 because some patients did not respond to this item.

Table 3.4 Result of multivariable analysis of predictor variables in relation to total satisfaction score - mixed model with fixed effects (n=223)

Term	Estimate	Standard Error	t Ratio	p value
Intercept	45.02	0.36	123.65	<.0001
Female Yes=1, No=2[1]	0.78	0.34	2.33	0.0206
Age 0-64=2, ≧65=1[1]	0.57	0.38	1.51	0.1313
Travel time 14 min or less=2,15min or more=1[1]	0.56	0.33	1.67	0.0968
Regular physician in charge Yes=1, No=2[1]	0.41	0.37	1.11	0.2702
Today's doctor Director=1, Others=2[1]	0.80	0.36	2.21	0.0283
Consultation time below 5mins=2, above 5mins=1[1]	1.98	0.37	5.28	<.0001
Site number [1]	0.55	0.75	0.73	0.4674
Site number [2]	0.61	0.68	0.89	0.3746
Site number [3]	−2.66	0.96	−2.76	0.0062
Site number [4]	1.75	0.82	2.14	0.0333
Site number [5]	0.77	0.70	1.11	0.2691

* The number is lower than 262 because some patients did not respond to this item.

Table 3.5 Comparison with Takemura's study about the mean scores of 5 components of satisfaction and the total satisfaction score

	The present study		Takemura's study	
	mean	S.D.	mean	S.D.
Overall satisfaction	7.89	1.26	8.14	1.34
Complete examination	7.87	1.17	8.00	1.32
Whole person care	7.02	1.46	5.90	1.51
Examination time	11.11	2.14	11.01	2.19
Patient centeredness	12.21	1.41	11.80	1.61
The total satisfaction	46.07	5.52	-	-

*For this comparison, the original score of each questionnaire item in Takemura's study ranged from 0 to 4, so they were converted to 1 to 5 in this table.

Table 3.6 The association between patients' sex and satisfaction in systematic reviews

	Systematic reviews	association with sex
1	Sirdifield 2016 (19)	Not mentioned
2	Ricci-Cabello 2018 (18)	Not mentioned
3	Bertakis 2011 (16)	Not mentioned
4	Spurling 2017 (25)	Not mentioned
5	Mapp 2015 (23)	Not mentioned
6	Stokes 2015 (26)	No associations
7	Huang 2013 (21)	Not mentioned
8	Lewis 2009 (22)	Not mentioned
9	Chou 2009 (20)	Not mentioned
10	Neumeyer-Gromen 2006 (24)	Not mentioned
11	Oliveira 2012 (32)	Not mentioned
12	Wilson 2006 (27)	Not mentioned
13	Cabana 2004 (28)	Not mentioned
14	Harrington 2004 (29)	Not mentioned
15	Irani 2009 (30)	Not mentioned
16	Cheraghi-Sohi 2008 (31)	Not mentioned
17	Randall 2017 (36)	Not mentioned

18	Elrashidi 2017 (33)	Not mentioned
19	Martinez-Gonzalez 2014 (35)	Not mentioned
20	Horrocks 2002 (34)	Not mentioned
21	Swan 2015 (37)	Not mentioned
22	Jika 2015 (41)	Not mentioned
23	Candy 2011 (39)	Not mentioned
24	Garratt 2007 (40)	Not mentioned
25	Newnham 2017 (43)	Not mentioned
26	Allen 2014 (42)	Not mentioned

Table 3.7 Comparison of the present study and Kisa et al's study

		Present study	Kisa et al.'s study
Patient	Sample number	262	122
	Sex	female 52%	female 67%
	Age	<19 0%, 20-64 44% 65-74 31%, >75 25%	<19 24%, 20-64 28% 65-74 16%, >75 32%
	Reason for visit	Regular visit 78%	Routine visit 48%
	Number of episodes	1:57%, 2:24%, 3:11% 4: 5%, 5≦:3%	1:55%, 2:30%, 3:14% 4: 2%
Doctor	Number	20 doctors	7 doctors
	Type	family doctors (board-certified)	general practitioners (maybe not board-certified)
Field		Hokkaido (Urban and rural)	Hokkaido (Unknown area)
Questionnaire		5 part (12 items): overall satisfaction, complete examination, whole person care, examination time and patient centeredness)	5 items (patient's needs, active involvement, information sharing, emotional support and general)

Chapter 4

4 Japanese patients' preference for patient-centered medicine and their satisfaction with the consultation in Japanese family practice

In this chapter, the association between patients' preference for patient-centered medicine and patients' satisfaction was assessed using the same sample as Chapter 2 and 3.

4.1 Background

According to the systematic reviews relevant to patient satisfaction with care, patient satisfaction was related to accessibility, patient empowerment and patient-centeredness. In Japan, there are many research papers which dealt with patient satisfaction, but we can find only one article directly related to "Patient-centeredness" (54). That may be due to the fact that the concept of patient-centeredness is not common in Japan.

According to the results of the studies in Chapter 2 and 3, Patient-centered medicine was preferred in Japan as much as in UK, and more vulnerable the patients (higher age, more anxiety and feeling more ill) expressed a greater preference for patient-centered medicine. And, most of Japanese patients were satisfied with the consultation in Japanese family practice. Next it is important to assess the association between patients' preference for patient-centered medicine and patients' satisfaction.

4.2 Objective

The purpose of this study was to identify whether patients who preferred patient centered medicine were more likely to be satisfied with the consultation of Japanese family practice.

4.3 Method

4.3.1 Design

Cross-sectional study

4.3.2 Setting and practices (the reader will note that the methods sections are the same as chapters 2 and 3, except for the research questions and the analysis)

We chose 6 local private primary care clinics giving ambulatory care by board-certified family doctors in Hokkaido province of Japan. These doctors also provided training in the residency program of family medicine and were supportive of academic work including primary care research. The six practices selected, represented a range of settings to ensure that the impact of demographic factors on patient preference could be assessed. Two practices were in residential areas of a middle-size provincial city; one practice was serving urban population of a megalopolis; three practices were in small towns known for agriculture, fishing and sightseeing.

4.3.3 Research questions

Are the patients' preferences for the components of Patient-centered medicine including Communication, Partnership and Health Promotion associated with the satisfaction with practice?

4.3.4 The factors: Questionnaire on Patients' Preferences for Patient-centered medicine

The questionnaire on patients' preference for patient-centeredness was based on Little et al.'s questionnaire contained in a paper entitled "What patients want from their practitioner: descriptive data and factor analysis." (58).

4.3.4.1 Items and Response choices

This questionnaire had 23 items which are shown previously in Table 2.2 in the results section of Chapter 2. The stem of this questionnaire was: “I want the doctor to …”. The patients were offered the following response choices: “Very strongly agree”, “Strongly agree”, “Agree”, “neutral” and “Disagree”.

4.3.4.2 Little et al.’s factor analysis

Little et al. conducted factor analysis of the 23 items on this questionnaire and discovered 3 factors which covered 16 of 23 items: factor 1 on Communication (9 items); factor 2 on Partnership (5 items); and factor 3 on Health Promotion (2 items). The remaining items included 2 items on what Little et al. call; Practical Medicine. He included 2 items; one on physical examination and one on medication prescriptions. For this study two additional items were added, based on the author’s experience in Japanese medical system. They were: preference for a blood and urinary test; and preference for an X-ray test.

4.3.4.3 Validity and reliability

This questionnaire’s validity was evaluated by factor analysis (Cronbach’s α between 0.87 and 0.92 for each factor) and its reliability was also checked by test-retest (correlation between 0.47 and 0.71) (58).

4.3.4.4 Translation and back translation

The original questionnaire of Little et al. was translated into Japanese by the author. This Japanese version was back translated into English by a professional translator. This English version was checked by the supervisor and corrected to fit with the original meaning. Based on these corrections, the author revised Japanese version.

4.3.4.5 Variables used in the Analysis

The factor scores are the mean of items included in each factor, using 5 for “Very strongly agree”, 4 for “Strongly agree”, 3 for “Agree”, 2 for “neutral” and 1 for “Disagree”. For the factor 1, 2 and 3, on Communication, Partnership and Health Promotion, the most frequent score was 3.00 according to the results in Chapter 2 shown previously.

So, for each of the three factors of the Little et al. questionnaire, the responses were grouped into a dichotomy, the groups who preferred patient-centered care were defined as those whose factor scores are equal or more than 3, and the groups who didn’t prefer patient-centered care were defined as those whose factor scores are lower than 3.

4.3.5 The outcome: Questionnaire on Patients’ Satisfaction

A questionnaire by Takemura was selected to assess the level of the patients’ satisfaction for use in this study (61).

4.3.5.1 Items and Response choices

This questionnaire asked the patients to indicate their satisfaction with their consultation on a 5-point Likert scale (very strongly agree, strongly agree, agree, neutral, disagree) with items about overall satisfaction (2), complete examination (2), whole person care (2), examination time (3), and patient centeredness (3). There were 12 items in total, see the Table 3.1 previously shown in Chapter 3.

4.3.5.2 Validity and reliability

This questionnaire’s validity was evaluated by factor analysis (Cronbach’s α between 0.77 and 0.85 depending on the subscale) and its reliability was also checked by test-retest (correlation between 0.59 and 0.96 depending on the item) (61).

4.3.5.3 Translation

Takemura's questionnaire exists in Japanese (62) and English (61). These were translations that were used in this study.

4.3.5.4 Variables used in the Analysis

The total satisfaction score was used as the outcome for the analysis. The total satisfaction score was the sum of 12 items, using 5 for "Very strongly agree", 4 for "Strongly agree", 3 for "Agree", 2 for "neutral" and 1 for "Disagree".

4.3.6 Inclusion and exclusion criteria

Patients were Japanese, 20 to 85 years old, no dementia, not pregnant, without disability with regard to writing and without an urgent problem.

4.3.7 Pilot study

The draft questionnaires were piloted among 40 patients. Some parts of questionnaire were not answered correctly because of poor appearance of sentences and layout. And questions on some pages were completely unanswered by some patients because they could only see one side of paper printed on both sides. Some sentences of questions were criticized as being difficult to understand. According to these results of pilot study, we revised the questionnaire to be answered more easily and clearly.

4.3.8 Ethics

Both the main study and pilot study had ethical approval from Japan Primary Care Association research ethics committees. A poster about the purpose and contents of this study was shown on the wall of waiting room and gave patients the chance to refuse to participate in this study, as well as the possibility of verbal refusal to the research assistant.

4.3.9 Data collection

We recruited consecutive patients in the waiting room. The clerks and nurses checked the patient's compatibility with the inclusion criteria and selected research participants for the research assistant. The research assistant explained the general information about the study to the patient. Patients completed a questionnaire before their consultation including the questionnaire on patients' preferences for patient-centered care and the patients' characteristics. At the end of the visit, patients completed the questionnaire on patients' satisfaction (the post-consultation questionnaire). The research assistant observed this process and supported patients if needed.

4.3.10 Analysis

We evaluated the differences between patients who said they preferred and those who did not prefer patient centeredness for each the 3 components separately on the total satisfaction score; this bivariate analysis used the t-test. The multivariate analysis used the program JMP Pro (based on SAS) and conducted a test of the associations using a mixed model with fixed effects (Appendix 1).

4.4 Results

About 400 patients were recruited to answer the questionnaire, but about 60 patients refused because of lack of time or difficulty to read and write due to aging. So, as a result, 341 patients answered pre-consultation questionnaires. Of 341 questionnaires, 79 (23.2%) were excluded because of lack of data on more than 3 items of all 49 items and 262 (76.8%) were used for the analysis (Fig 4.1).

4.4.1 Patient characteristics

Table 4.1 shows the patient characteristics. As noted in Chapter 2, these characteristics were compared to those of a national survey and found to be similar on sex, age and

family structure. And other characteristics including work, average number of years visiting the doctor, average travel time to clinics, average number of medical problems, their usual physician in charge, the reason for today's visit, feeling well or not, feeling worried or not, the doctors in charge at the consultation and consultation time at the consultation were found to be same as those in Chapter 2 and 3.

4.4.2 Main results

Table 4.2 shows the results of bivariate analyses for 3 factors of Patient-centered medicine in association with the total satisfaction score. The factor1 (Communication) and the factor2 (Partnership) had significant positive association with the total satisfaction score. But, the factor3 (Health Promotion) did not.

Table 4.3 shows the results of multivariate analyses which included patient characteristics, which had significant associations with the total satisfaction score in Chapter 3 (i.e. Gender, Travel time, Consultation time), and Factor 1 of the patients' preference for Patient-centered medicine (Factor 1 was on Communication) in relation to the total satisfaction score. Table 4.4 and 4.5 show the results of the analysis of Factors 2 and 3 in relation to patient satisfaction, controlling for the relevant patient characteristics. The groups of patients who were strongly satisfied with the consultation were more likely to prefer "Partnership" of Patient-centered medicine and have less than 5 minutes of consultation time as shown in Tables 4.3 to 4.5.

4.5 Discussion

Patients' preference for "Partnership" was associated with the satisfaction with practice. but preference for "Communication" and "Health Promotion" were not associated with satisfaction. In this study, we did not measure the level of Patient-centered medicine of each encounter based on patients' subjective evaluation after an encounter, rather we measured the patients' preferences before the encounter, for the three dimensions of patient-centered care: Communication; Partnership; and Health Promotion. So, we cannot interpret a direct association between patient-centered medicine with patients' satisfaction in this study as some studies did (16-19) .

Nonetheless, if a patient prefers Partnership (Factor 2) and is satisfied, then we can interpret this to mean that they were likely to have also experienced strong partnership. Similarly, if a patient prefers Communication (Factor 1) and Communication has no correlation with satisfaction, then we do not know whether or not the patient experienced strong communication in his/her encounters with the family physician. And also, similarly, if a patient prefers Health Promotion and that Health Promotion has no correlation with satisfaction, we do not know whether or not the patient experienced health promotion in encounters with the family physician. Using logic, we tentatively hypothesize that in this Japanese study, patient partnership was important to patient satisfaction, although not directly, but through the patients' preferences.

The results of this study highlight the importance of partnership, because it was the only factor where patient preferences for patient centered care that was correlated with patient satisfaction. The uniqueness of partnership was also the result of another study (66) in which patient-centered communication influenced patients' health through perceptions that common ground was achieved with the physician; we see in comparing the questionnaire items that finding common ground and patient partnership and very similar ideas. Through the current study and Stewart et al., it might be said that the partnership (and common ground) between patients and physicians is perhaps the most relevant component of patient-centered medicine to patients' satisfaction. Furthermore, this is shown both in a Western country and also in Japan.

Compared with four relevant studies about the relationship between patient-centered medicine and patient satisfaction shown in Table 4.6, the present study was the only one to find the uniqueness of partnership of patient-centered medicine

In Japan, all board-certified family physicians learn Patient-centered medicine as one of the most important learning objectives and were assessed on their ability and practice by case portfolio examination and OSCE (Objective Structured Clinical Examination). The results of the current study can encourage educators to strengthen the learning of Partnership and Finding common ground. In recent medical education, especially in medical schools, the medical interview techniques, such as eye contact, tend to be highly

valued. This study reminds us that learners have to also pay attention to not only the techniques but also partnership within the medical consultation.

Figure 4.1 Study flow and eligible patients

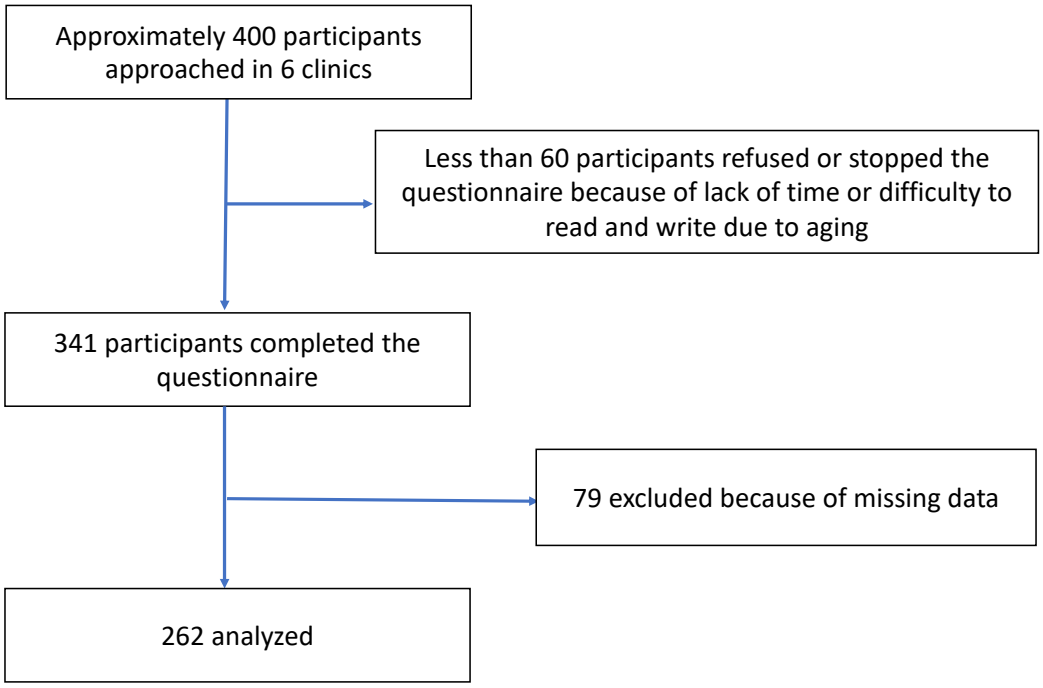


Table 4.1 Frequency distribution of all patient characteristics (N=262)

Sex			
	Men	125	47.7%
	Female	137	52.3%
	Total	262	100.0%
Age			
	0–64	114	43.5%
	≧65	148	56.5%
	Total	262	100.0%
Family Structure			
	Other	199	78.0%
	Alone	56	22.0%
	Total	255*	100.0%
Paid Work			
	Paid work	138	52.9%
	No paid work	123	47.1%
	Total	261*	100.0%
Visiting years			
	5 years of less	104	43.2%
	≧6 years	137	56.8%
	Total	241*	100.0%
Travel times			
	14 min or less	135	51.9%
	≧15 min	125	48.1%
	Total	260*	100.0%
Medical problems			
	0–1	151	57.6%
	≧2	111	42.4%
	Total	262	100.0%
Regular physician in charge			
	No	123	50.2%
	Yes	122	49.8%
	Total	245*	100.0%
Reason for visit			
	Regular	200	77.5%
	Acute illness	58	22.5%
	Total	258*	100.0%
Feeling unwell			
	Slightly/not	199	76.0%
	Very/Moderately	63	24.0%
	Total	262	100.0%
Feeling worried			

	Slightly/not	84	32.1%
	Very/Moderately	178	67.9%
	Total	262	100.0%
Doctor in charge at the consultation			
	Others	148	56.9%
	Director	112	43.1%
	Total	260*	100
Consultation time			
	above 5mins	180	69.5%
	below 5mins	79	30.5%
	Total	259*	100.0%

* The number is lower than 262 because some patients did not respond to this item.

Table 4.2 Result of bivariate analysis of total satisfaction score mean and 3 factors of Patient-centered medicine

		number	Mean value	t value	p value
Factor1 : Communication	Want	193	46.50	−1.96	0.008
	Don't want	61	44.54		
	Total	254*			
Factor2 : Partnership	Want	182	46.59	−2.07	0.003
	Don't want	73	44.52		
	Total	255*			
Factor3 : Health Promotion	Want	222	46.23	−1.21	0.11
	Don't want	36	45.03		
	Total	258*			

* The number is lower than 262 because some patients did not respond to an item.

Table 4.3 Result of multivariable analysis of predictor variables and Factor1 (Communication) in relation to total satisfaction score - mixed model with fixed effects (n=240)

Term	β error	Standard Error	t Ratio	p value
Intercept	45.18	0.36	124.80	<.0001
Factor1 want=1, don't want=2[1]	0.49	0.33	1.49	0.1385
Female Yes=1, No=2[1]	0.60	0.34	1.77	0.0778
Travel time 14 min or less=2,15min or more=1[1]	0.51	0.34	1.51	0.1332
Consultation time below 5mins=2, above 5mins=1[1]	1.93	0.37	5.24	<.0001
Site number [1]	0.69	0.75	0.92	0.3589
Site number [2]	0.29	0.67	0.42	0.6715
Site number [3]	−1.24	0.92	−1.35	0.1792
Site number [4]	0.05	0.77	0.07	0.9442
Site number [5]	0.91	0.70	1.30	0.1945

* The number is lower than 262 because some patients did not respond to an item.

Table 4.4 Result of multivariable analysis of predictor variables and Factor2 (Partnership) in relation to total satisfaction score - mixed model with fixed effects (n=241)

Term	β error	Standard Error	t Ratio	p value
Intercept	39.98	1.51	26.42	<.0001
Factor2 want=1, don't want=2[1]	1.71	0.49	3.52	0.0005
Female Yes=1, No=2[1]	0.51	0.33	1.55	0.1220
Travel time 14 min or less=2,15min or more=1[1]	0.58	0.33	1.77	0.0773
Consultation time below 5mins=2, above 5mins=1[1]	1.91	0.36	5.39	<.0001
Site number [1]	0.37	0.74	0.50	0.6167
Site number [2]	0.43	0.66	0.65	0.5171
Site number [3]	−1.06	0.90	−1.18	0.2388
Site number [4]	0.50	0.74	0.67	0.5025
Site number [5]	0.56	0.69	0.81	0.4179

* The number is lower than 262 because some patients did not respond to an item.

Table 4.5 Result of multivariable analysis of predictor variables and Factor3 (Health Promotion) in relation to total satisfaction score - mixed model with fixed effects (n=244)

Term	β error	Standard Error	t Ratio	p value
Intercept	45.08	0.49	92.36	<.0001
Factor3 want=1, don't want=2[1]	0.17	0.48	0.35	0.7244
Female Yes=1, No=2[1]	0.63	0.34	1.87	0.0620
Travel time 14 min or less=2,15min or more=1[1]	0.50	0.33	1.51	0.1334
Consultation time below 5mins=2, above 5mins=1[1]	2.01	0.36	5.51	<.0001
Site number [1]	0.62	0.75	0.83	0.4101
Site number [2]	0.26	0.67	0.40	0.6918
Site number [3]	−1.31	0.92	−1.44	0.1525
Site number [4]	0.31	0.76	0.41	0.6827
Site number [5]	0.81	0.69	1.17	0.2415

* The number is lower than 262 because some patients did not respond to an item.

Table 4.6 The association between patients-centered medicine and satisfaction in relevant studies

	Setting / Type of questionnaire about satisfaction	Result of assessment	Other findings – patient characteristics
Bertakis (16)	University medical center / visit-specific satisfaction questionnaire by Ware and associates	No association between patient-centered care and satisfaction	None
Flocke (17)	Family practices / 4 physician-specific items from the MOS 9 Item Visit Rating Form	Person-focused style of consultation was significantly associated with patient satisfaction	None
Ricci-Cabello (18)	Family practices / Reporting systems for quality improvement initiatives in primary care (QOF and GPPS)	Highest correlation between patient-centered care and patient satisfaction	Health status -positive association with satisfaction
Sirdifield (19)	General practices / Questionnaire of the Quality and Costs of Primary Care in Europe study	High satisfaction with a mix of “relational” and “functional” aspects of care such as politeness, listening carefully	None

Chapter 5

5 General Discussions and Integration of Findings

Patient-centered medicine has been shown to have the benefit not only through patient satisfaction but also through clinical indicators in western countries and this concept has become the essential part of the practice and education about primary care (5). But in non-western countries there is the paucity of papers about its effectiveness. Now the role and significance of Family medicine / Primary care is being reconsidered in Japan's structural change as a result of the rapidly aging population and excessive specialization of medicine (50-52, 55, 56). So, it is vital to assess patients' preferences for Patient-centered medicine in Japan as well as patients' satisfaction for their care by family doctors. By exploring what type of preference for Patient-centered medicine is associated with high satisfaction, it will be possible to assist in the development of family medicine and primary care in Japan's clinical practice.

5.1 Approach to the integration of the results of the studies

A pre-consultation survey about the preference for Patient-centered medicine and a post-consultation survey about the satisfaction for the practice were carried out. Both were associated with patient characteristics and they were correlated with each other. The findings from these analyses lead to general themes and implications to the development of family medicine and primary care in Japan.

5.2 Integrated summary and findings in relation to the literature

In general, more than 80% of patients wanted each of the three factors of PCM: Communication, Partnership and Health Promotion. The more vulnerable the patients

(higher age, more anxiety and feeling more ill), the more they expressed preference for all three factors: patient-centered Communication, Partnership and Health Promotion. Many patients were satisfied with the consultation provided. Patients whose travel time was longer than 15 minutes and whose length of consultation less than 5 minutes and whose sex was female had stronger satisfaction with the consultation. And, the groups of patients who were strongly satisfied with the consultation were more likely to prefer "Partnership" of Patient-centered medicine and we also note that out of 3 factors, Partnership has more predictors which have association in both studies than other 2 factors: so, the partnership between patients and physicians is perhaps the most relevant component of patient-centered medicine in relation to patients' satisfaction.

According to these findings, Patient-centered medicine is preferred in Japan which is a non-Western country to the same extent as in Western country like UK (58). As well, Japanese patients were satisfied with the consultation provided by board-certified family doctors. This finding is, it can be argued, provides evidence for the usefulness of Patient-centered medicine in Japan.

Among the components of Patient-centered medicine, Partnership between patients and physicians is perhaps the most relevant component because of its association with patients' satisfaction. Partnership means mutual discussion of issues and sharing of decision making on problems and of the treatment's roles and goals. The importance of partnership has been highlighted by other authors and researchers (8, 19, 66) who found that patient-centered communication influenced patients' health through perceptions that common ground was achieved with the physician. So, the importance of this factor, Partnership, is shown not only in a Western country but also in Japan.

5.3 Implication of these findings

5.3.1 Messages relevant to the development of family medicine in Japan

Through these findings of this study it may be said that, even in non-Western countries whose culture and history are different from Western countries, patient-

centered medicine seems to be accepted by patients. Patient-centered medicine is one of the important concepts of family medicine and primary care (67). The fact that Patient-centered medicine was found to be accepted by patients may encourage the Japanese health care leaders to recognize the value of patient centered family medicine and the importance of its development in Japan. The finding of patient's satisfaction for the consultation provided by a sample of board-certified family doctors might also support this direction.

Even in Japan which has been believed to be relatively equitable society, health disparities are becoming problematic especially in view of economic disparities (68-70). As shown in this study, the more vulnerable the patients (higher age, more anxiety and feeling more ill), the more the expressed preference for patient-centered Communication, Partnership and Health Promotion. This finding indicates that Family medicine may contribute to relieving the negative effects of disparities and acting as a social resource in Japan, as it has in other countries (71-73).

5.3.2 Additional contribution of these studies to this theme

Based on the literature of Little et al., Patient-centered medicine is defined as communication and partnership between patients and doctors, as well as health promotion; also, Practical medicine is defined as the clinical approach to solve patients' health problem through diagnosis and treatment using physical examination, laboratory tests and prescription (58). In the present study, patients who wanted an examination, a prescription, laboratory tests and X-ray were more likely to want good communication, Partnership and Health Promotion as well. This may imply that patients in Japan prefer both Patient-centered medicine and Practical medicine. We could call this an integrated approach which is referred to a Patient-Centered Clinical Method including both Patient-centered medicine and Practical medicine described by Little et al. (58) and Stewart et al. (5).

The Patient-Centered Clinical Method includes 4 components. The first component is to explore disease and patients' perception of health and illness. The second

component is the integration of these concepts with an understanding of the whole person. The third component is the mutual task of finding common ground between patient and clinician. The fourth component is to build on the patient-clinician relationship on each contact with the patient. This method has a balanced approach to patient's health problem, including both the patient centered communication aspects and the Practical medicine aspects, and, therefore, seemed to be useful in Japan according to the present study.

5.3.3 Implications for clinical practice and medical education

Based on the finding that Japanese patients preferred Patient-centered medicine including Communication, Partnership and Health Promotion, it is important for family doctors to build strong partnerships with patients, have good communication in daily practice and sometimes provide health promotion, especially for vulnerable patients such as the elderly, patients with anxiety and patients feeling ill. And they should pay greatest attention to building good partnership because Partnership is the only component which was closely associated with patients' satisfaction.

Because patients who wanted an examination, a prescription, laboratory tests and X-ray were more likely to want good Communication, Partnership and Health Promotion, family doctors should also practice an integrated approach of Patient-centered medicine and practical medicine, as described by the Patient-Centered Clinical Method (5).

It is important for family doctors in Japan to know that Japanese patients might prefer relatively shorter consultation time. This may seem to contradict the need for enough consultation time to listen to patients' complaint and medical history for the broad patient centered information collecting as well as accurate diagnosis and adequate treatment plan, but it might be better to make the consultation concise and concentrated if possible. This may also be considered reasonable for the current Japanese practice is very busy with many patients waiting before consultation.

In view of medical education, it is important to teach both Patient-centered medicine and practical medicine from the beginning of learning in medical school to residency training toward family medicine board-certification. Among 4 components of Patient-centered medicine, the learning of Partnership and Finding common ground should be emphasized. In recent medical education especially in medical schools, the medical interview techniques such as eye contact, tend to be valued. This study reminds of us that learners have to also pay attention to the content of medical consultation, such as partnership and finding common ground in addition to the techniques in medical interview.

5.4 Future research

While the present study showed that patient-centered medicine is important to Japanese patients, the study evaluated only patients' preferences, but did not evaluate patients' direct perceptions of patient-centered medicine. And also, the difference between patients' preferences for patient-centered medicine was not evaluated among varying levels of patients' health problems such as multi-morbidity and varying lengths of consultation time. So in future research, these should be explored quantitatively and qualitatively in Japan. Especially in qualitative research, exploratory open questions should probe deeply into patients' desires for their health care, such as "What do Japanese patients want from family doctors?", "What does Patient-centered medicine mean for Japanese patients?", "What do they think about the process and length of today's consultation?", "What aspects of the consultation were they most satisfied with and which aspects were they least satisfied with?".

The present study included only board-certified family doctors. So, to make the results more generalizable, other doctors such as conventional primary care doctors (not trained in a Family medicine residency) and specialists, should be included in the future research. Using diverse samples of physicians, studies should be designed to assess patients' perceptions of patient-centered care after their visit with their physicians and to ascertain the influence of patient-centeredness on outcomes such as patient satisfaction and patient reported health.

References

1. Balint M. Treatment or diagnosis: a study of repeat prescriptions in general practice. Tavistock Publications, London & J. B. Lippincott Co., Philadelphia1970.

2. Byrne PS LB. Doctors Talking To Patients. London: Her Majesty's Stationery Office; 1984.

3. Moral RR, Torres LA, Ortega LP, Larumbe MC, Villalobos AR, Garcia JA, et al. Effectiveness of motivational interviewing to improve therapeutic adherence in patients over 65 years old with chronic diseases: A cluster randomized clinical trial in primary care. Patient education and counseling. 2015;98(8):977-83.

4. McWhinney IR. Beyond Diagnosis. New England Journal of Medicine. 1972;287(8):384-7.

5. Moira Stewart JBB, W Wayne Weston, Ian R McWhinney, Carol L McWilliam and Thomas R Freeman. Patient-Centered Medicine Transforming the Clinical Method 3rd edition. London: Radcliff; 2014.

6. Street RL, Jr., Haidet P. How well do doctors know their patients? Factors affecting physician understanding of patients' health beliefs. Journal of general internal medicine. 2011;26(1):21-7.

7. Bertakis KD, Azari R. Patient-centered care: the influence of patient and resident physician gender and gender concordance in primary care. Journal of women's health (2002). 2012;21(3):326-33.

8. Schoenthaler A, Knafl GJ, Fiscella K, Ogedegbe G. Addressing the Social Needs of Hypertensive Patients: The Role of Patient-Provider Communication as a Predictor of Medication Adherence. Circulation Cardiovascular quality and outcomes. 2017;10(9).

9. Webb MJ, Wadley G, Sanci LA. Improving Patient-Centered Care for Young People in General Practice With a Codesigned Screening App: Mixed Methods Study. JMIR mHealth and uHealth. 2017;5(8):e118.

10. Roumie CL, Greevy R, Wallston KA, Elasy TA, Kaltenbach L, Kotter K, et al. Patient centered primary care is associated with patient hypertension medication adherence. Journal of behavioral medicine. 2011;34(4):244-53.

11. Ramond-Roquin A, Bouton C, Begue C, Petit A, Roquelaure Y, Huez JF. Psychosocial Risk Factors, Interventions, and Comorbidity in Patients with Non-Specific Low Back Pain in Primary Care: Need for Comprehensive and Patient-Centered Care. Frontiers in medicine. 2015;2:73.

12. Sternke EA, Abrahamson K, Bair MJ. Comorbid Chronic Pain and Depression: Patient Perspectives on Empathy. Pain management nursing : official journal of the American Society of Pain Management Nurses. 2016;17(6):363-71.

13. Cramm JM, Nieboer AP. The changing nature of chronic care and coproduction of care between primary care professionals and patients with COPD and their informal caregivers. International journal of chronic obstructive pulmonary disease. 2016;11:175-82.

14. Cunningham A, Mautner D, Ku B, Scott K, LaNoue M. Frequent emergency department visitors are frequent primary care visitors and report unmet primary care needs. Journal of evaluation in clinical practice. 2017;23(3):567-73.

15. Levinson W, Lesser CS, Epstein RM. Developing physician communication skills for patient-centered care. Health affairs (Project Hope). 2010;29(7):1310-8.

16. Bertakis KD, Azari R. Determinants and outcomes of patient-centered care. Patient education and counseling. 2011;85(1):46-52.

17. Flocke SA, Miller WL, Crabtree BF. Relationships between physician practice style, patient satisfaction, and attributes of primary care. The Journal of family practice. 2002;51(10):835-40.

18. Ricci-Cabello I, Stevens S, Dalton ARH, Griffiths RI, Campbell JL, Valderas JM. Identifying Primary Care Pathways from Quality of Care to Outcomes and Satisfaction Using Structural Equation Modeling. Health Services Research. 2018;53(1):430-49.

19. Sirdifield C, Godoy Caballero A, Windle K, Jackson C, McKay S, Schafer W, et al. Comparing importance and performance from a patient perspective in English general practice: a cross-sectional survey. Family practice. 2016;33(2):179-85.

20. Chou R, Fu R, Carrino JA, Deyo RA. Imaging strategies for low-back pain: systematic review and meta-analysis. Lancet (London, England). 2009;373(9662):463-72.

21. Huang Y, Chen R, Wu T, Wei X, Guo A. Association between point-of-care CRP testing and antibiotic prescribing in respiratory tract infections: a systematic review and meta-analysis of primary care studies. The British journal of general practice : the journal of the Royal College of General Practitioners. 2013;63(616):e787-94.

22. Lewis RA, Neal RD, Williams NH, France B, Hendry M, Russell D, et al. Follow-up of cancer in primary care versus secondary care: systematic review. The British journal of general practice : the journal of the Royal College of General Practitioners. 2009;59(564):e234-47.

23. Mapp F, Hutchinson J, Estcourt C. A systematic review of contemporary models of shared HIV care and HIV in primary care in high-income settings. International journal of STD & AIDS. 2015;26(14):991-7.

24. Neumeyer-Gromen A, Lampert T, Stark K, Kallischnigg G. Disease management programs for depression: a systematic review and meta-analysis of randomized controlled trials. Medical care. 2004;42(12):1211-21.

25. Spurling GK, Del Mar CB, Dooley L, Foxlee R, Farley R. Delayed antibiotic prescriptions for respiratory infections. The Cochrane database of systematic reviews. 2017;9(evaluating the antibiotic use for patients.):Cd004417.

26. Stokes J, Panagioti M, Alam R, Checkland K, Cheraghi-Sohi S, Bower P. Effectiveness of Case Management for 'At Risk' Patients in Primary Care: A Systematic Review and Meta-Analysis. PloS one. 2015;10(7):e0132340.

27. Wilson A, Childs S. The effect of interventions to alter the consultation length of family physicians: a systematic review. The British journal of general practice : the journal of the Royal College of General Practitioners. 2006;56(532):876-82.

28. Cabana MD, Jee SH. Does continuity of care improve patient outcomes? The Journal of family practice. 2004;53(12):974-80.

29. Harrington J, Noble LM, Newman SP. Improving patients' communication with doctors: a systematic review of intervention studies. Patient education and counseling. 2004;52(1):7-16.

30. Irani JS, Middleton JL, Marfatia R, Omana ET, D'Amico F. The use of electronic health records in the exam room and patient satisfaction: a systematic review. Journal of the American Board of Family Medicine : JABFM. 2009;22(5):553-62.

31. Cheraghi-Sohi S, Bower P. Can the feedback of patient assessments, brief training, or their combination, improve the interpersonal skills of primary care physicians? A systematic review. BMC health services research. 2008;8:179.

32. Oliveira VC, Refshauge KM, Ferreira ML, Pinto RZ, Beckenkamp PR, Negrao Filho RF, et al. Communication that values patient autonomy is associated with satisfaction with care: a systematic review. Journal of physiotherapy. 2012;58(4):215-29.

33. Elrashidi MY, Mohammed K, Bora PR, Haydour Q, Farah W, DeJesus R, et al. Co-located specialty care within primary care practice settings: A systematic review and meta-analysis. Healthcare (Amsterdam, Netherlands). 2017.

34. Horrocks S, Anderson E, Salisbury C. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. BMJ (Clinical research ed). 2002;324(7341):819-23.

35. Martinez-Gonzalez NA, Djalali S, Tandjung R, Huber-Geismann F, Markun S, Wensing M, et al. Substitution of physicians by nurses in primary care: a systematic review and meta-analysis. BMC health services research. 2014;14:214.

36. Randall S, Crawford T, Currie J, River J, Betihavas V. Impact of community based nurse-led clinics on patient outcomes, patient satisfaction, patient access and cost effectiveness: A systematic review. International journal of nursing studies. 2017;73:24-33.

37. Swan M, Ferguson S, Chang A, Larson E, Smaldone A. Quality of primary care by advanced practice nurses: a systematic review. International journal for quality in health care : journal of the International Society for Quality in Health Care. 2015;27(5):396-404.

38. Ansell D, Crispo JAG, Simard B, Bjerre LM. Interventions to reduce wait times for primary care appointments: a systematic review. BMC health services research. 2017;17(1):295.

39. Candy B, Holman A, Leurent B, Davis S, Jones L. Hospice care delivered at home, in nursing homes and in dedicated hospice facilities: A systematic review of quantitative and qualitative evidence. International journal of nursing studies. 2011;48(1):121-33.

40. Garratt AM, Danielsen K, Hunskaar S. Patient satisfaction questionnaires for primary care out-of-hours services: a systematic review. The British journal of general practice : the journal of the Royal College of General Practitioners. 2007;57(542):741-7.

41. Jilka SR, Callahan R, Sevdalis N, Mayer EK, Darzi A. "Nothing About Me Without Me": An Interpretative Review of Patient Accessible Electronic Health Records. Journal of medical Internet research. 2015;17(6):e161.

42. Allen J, Hutchinson AM, Brown R, Livingston PM. Quality care outcomes following transitional care interventions for older people from hospital to home: a systematic review. BMC health services research. 2014;14:346.

43. Newnham H, Barker A, Ritchie E, Hitchcock K, Gibbs H, Holton S. Discharge communication practices and healthcare provider and patient preferences, satisfaction and comprehension: A systematic review. International journal for quality in health care : journal of the International Society for Quality in Health Care. 2017;29(6):752-68.

44. Alden DL, Merz MY, Akashi J. Young adult preferences for physician decision-making style in Japan and the United States. Asia Pac J Public Health. 2012;24(1):173-84.

45. Hashimoto H, Fukuhara S. The influence of locus of control on preferences for information and decision making. Patient education and counseling. 2004;55(2):236-40.

46. Nomura K, Ohno M, Fujinuma Y, Ishikawa H. Patient autonomy preferences among hypertensive outpatients in a primary care setting in Japan. Internal medicine (Tokyo, Japan). 2007;46(17):1403-8.

47. Sekimoto M, Asai A, Ohnishi M, Nishigaki E, Fukui T, Shimbo T, et al. Patients' preferences for involvement in treatment decision making in Japan. BMC Fam Pract. 2004;5:1.

48. Association JPC. About the association. 2018 [cited 2018. Available from: https://www.primary-care.or.jp/about/index.html.

49. Kaneko M, Matsushima M. Current trends in Japanese health care: establishing a system for board-certificated GPs. British Journal of General Practice. 2017;67(654):29-.

50. Arai H, Ouchi Y, Toba K, Endo T, Shimokado K, Tsubota K, et al. Japan as the front-runner of super-aged societies: Perspectives from medicine and medical care in Japan. Geriatrics & gerontology international. 2015;15(6):673-87.

51. Hutt P. Family medicine in Japan. British Journal of General Practice. 2009;59(566):699-701.

52. Kato G. Practical response of "specialist" in specialized medical care : From the case of emergency outpatient at a certain hospital [In Japanese]. Soshioroji. 2006;50(3):143-59.

53. Matsushige T. The Discourse of 'Patient-Centred Medicine': The Sociology of Patient Expertise. Tokyo: Yuuikaku; 2010.

54. Kisa K, Kawabata H, Itou T, Nishimoto N, Maezawa M. Survey of patient and physician satisfaction regarding patient-centered outpatient consultations in Japan. Internal medicine (Tokyo, Japan). 2011;50(13):1403-8.

55. World Health Organization and Ministry of Health LaW, Japan. Health service delivery profile: Japan 2012. 2012.

56. Yoshimura M, Gibbs T, Yamada T. Around the world: the development of family medicine in Japan -- planting seeds in semi-fertile soil. Education for Primary Care. 2008;19(5):476-80.

57. Dwamena F, Holmes-Rovner M, Gaulden CM, Jorgenson S, Sadigh G, Sikorskii A, et al. Interventions for providers to promote a patient-centred approach in clinical consultations. The Cochrane database of systematic reviews. 2012;12:Cd003267.

58. Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, et al. Preferences of patients for patient centred approach to consultation in primary care: observational study. BMJ (Clinical research ed). 2001;322(7284):468-72.

59. Hulley SB. Designing Clinical Research. 3rd.ed. PA USA: Lippincott Williams & Willkins.; 2007. 86 p.

60. OECD Health Statistics 2018 [Internet]. 2018. Available from: http://www.oecd.org/health/health-data.htm.

61. Takemura Y. Development of a questionnaire to evaluate patient satisfaction with medical encounters. Tohoku J Exp Med. 2006;210:373-81.

62. Takemura Y. Development of a questionnaire to evaluate patient satisfaction with medical encounters [In Japanese]. Japan Medical Journal. 2007;4324:101-3.

63. Elmore N, Burt J, Abel G, Maratos FA, Montague J, Campbell J, et al. Investigating the relationship between consultation length and patient experience: a cross-sectional study in primary care. The British journal of general practice : the journal of the Royal College of General Practitioners. 2016;66(653):e896-e903.

64. Hall JA, Dornan MC. Patient sociodemographic characteristics as predictors of satisfaction with medical care: a meta-analysis. Social science & medicine (1982). 1990;30(7):811-8.

65. Hall JA, Irish JT, Roter DL, Ehrlich CM, Miller LH. Satisfaction, Gender, and Communication in Medical Visits. Medical care. 1994;32(12):1216-31.

66. Stewart M, Brown JB, Donner A, McWhinney IR, Oates J, Weston WW, et al. The impact of patient-centered care on outcomes. The Journal of family practice. 2000;49(9):796-804.

67. Freeman TR. McWhinney's Textbook of Family Medicine. NewYork: Oxfor University Press; 2016.

68. Fujita M, Sato Y, Nagashima K, Takahashi S, Hata A. Income Related Inequality of Health Care Access in Japan: A Retrospective Cohort Study. PloS one. 2016;11(3):e0151690.

69. Fujita M, Sato Y, Nagashima K, Takahashi S, Hata A. Impact of geographic accessibility on utilization of the annual health check-ups by income level in Japan: A multilevel analysis. PloS one. 2017;12(5):e0177091.

70. Nomura S, Sakamoto H, Glenn S, Tsugawa Y, Abe SK, Rahman MM, et al. Population health and regional variations of disease burden in Japan, 1990-2015: a systematic subnational analysis for the Global Burden of Disease Study 2015. Lancet (London, England). 2017;390(10101):1521-38.

71. Arcury TA, Gesler WM, Preisser JS, Sherman J, Spencer J, Perin J. The effects of geography and spatial behavior on health care utilization among the residents of a rural region. Health Serv Res. 2005;40(1):135-55.

72. Jani B, Bikker AP, Higgins M, Fitzpatrick B, Little P, Watt GC, et al. Patient centredness and the outcome of primary care consultations with patients with depression in areas of high and low socioeconomic deprivation. The British journal of general practice : the journal of the Royal College of General Practitioners. 2012;62(601):e576-81.

73. Mercer SW, Watt GC. The inverse care law: clinical primary care encounters in deprived and affluent areas of Scotland. Annals of family medicine. 2007;5(6):503-10.

74. Statistical Consulting Group. UCLA. Introduction to linear mixed models 2019 [July 31, 2019]. Available from: https://stats.idre.ucla.edu/other/mult-pkg/introduction-to-linear-mixed-models/.

Appendices

Appendix 1 The Explanation of the Mixed Model with Fixed Effects

In this thesis, all data were collected in 6 different clinics and their locations were various and the background of patients also had diversity. Therefore, the location must be adjusted for in the analysis. Mixed model was selected to fulfill this condition and the subtype is fixed effect because the clusters (location) were only 6 and each had many patients.

1. Syntax of mixed model with fixed effect

One example of this analysis (Chapter2 Table 2.9) is described as below. Statistical software “JMP Pro 14.2” created based on SAS was used.

```
---------------------------------------------------------------------------
Fit Model(
        Y( :Factor 1 mean ),
        Effects(
                :Name( "Reason for visit Regular=2,Acute illness=1" ),
                :Name( "Feeling unwell Very/Moderately=1, Slightly/not=2" ),
                :Name( "Feeling worried  Very/Moderately=1,  Slightly/not=2" ),
                :Site number
        ),
        Personality( "Mixed Model" ),
        Run( Random Effects Covariance Parameter Estimates( 0 ) )
)
---------------------------------------------------------------------------
```

The process of analysis using this software is described as below.

A) Select Data of the present study
B) Select Analyze > Fit Model.
C) Select "Mixed Model" personality, and then click Y to add Yield of “Factor 1 mean".
D) Select “Site number”, “Reason for visit”, “Feeling unwell” and “Feeling worried” and click Add on the Fixed Effects tab.
E) Click Run.

2. Mixed model and fixed effect (74)

“Mixed models are an extension of simple linear models to allow both fixed and random effects, and are particularly used when there is non-independence in the data, such as arises from a hierarchical structure.” (74), in the sampling procedure.

"There are multiple ways to deal with hierarchical data. One simple approach is to aggregate. For example, suppose 10 patients are sampled from each doctor. Rather than using the individual patients' data, which is not independent, we could take the average of all patients within a doctor. This aggregated data would then be independent. Although aggregate data analysis yields consistent and effect estimates and standard errors, it does not really take advantage of all the data, because patient data are simply averaged." (74)

"Another approach to hierarchical data is analyzing data from one unit at a time. In our example, we could run six separate linear regressions—one for each doctor in the sample. Although this does work, there are many models, and each one does not take advantage of the information in data from other doctors. This can also make the results "noisy" in that the estimates from each model are not based on very much data." (74)

"Mixed models (also called multilevel models) can be thought of as a trade-off between these two alternatives. The individual regressions have many estimates and lots of data, but is noisy. The aggregate is less noisy, but may lose important differences by averaging all samples within each doctor. Mixed models are somewhere in-between." (74)

Appendix 2. Comparison of the patients who were excluded due to lack of data (n=79) and the patients who were included (n=262) using Chi-square test

	Included Patients n=262		Excluded Patients n=79		Chi Square	P value (Prob>ChiSq)
	#	%	#	%		
Sex					2.696	0.1006
Men	125	47.7	18	35.3		
Female	137	52.3	33	64.7		
Total	262	100	51	100		
Age					5.604	0.0179
0-64	114	43.5	12	25.5		
≧65	148	56.5	35	74.5		
Total	262	100	47	100		
Family Structure					4.896	0.0269
Other	199	78.0	30	62.5		
Alone	56	22.0	18	37.5		
Total	255	100	48	100		
Paid Work					17.404	<0.0001
Paid work	123	47.1	7	15.6		
No paid work	138	52.9	38	84.4		
Total	261	100	45	100		
Visiting years					1.937	0.1639
5 years of less	104	43.2	23	54.8		
≧6 years	137	56.8	19	45.2		
Total	241	100	42	100		
Travel times					6.516	0.0107
14 min or less	135	51.9	15	31.9		
≧15 min	125	48.1	32	68.1		
Total	260	100	47	100		
Medical problems					10.449	0.0012
0-1	151	57.6	61	77.2		
>2	111	42.4	18	22.8		
Total	262	100	79	100		
Regular physician in charge					2.742	0.0977
No	123	50.2	20	37.7		
Yes	122	49.8	33	62.3		
Total	245	100	53	100		
Reason for visit					0.130	0.7185
Regular	200	77.5	47	79.7		
Acute illness	58	22.5	12	20.3		
Total	258	100	59	100		
Feeling unwell					2.194	0.1385

Slightly/not	199	75.9	42	66.7		
Very/Moderately	63	24.1	21	33.3		
Total	262	100	63	100		
Feeling worried					2.660	0.1029
Slightly/not	84	32.1	14	21.9		
Very/Moderately	178	67.9	50	78.1		
Total	262	100	64	100		

Curriculum Vitae

Name: Tesshu Kusaba

Post-secondary Education and degrees

1999 M.D. Kyoto University School of Medicine, Kyoto, Japan
1999-2001 Junior Resident, Nikko Memorial Hospital, Muroran, Japan
2001-2003 Senior Resident in Family Practice, Hokkaido Centre for Family Medicine, Caress Alliance, Muroran, Japan
2004- Master of Clinical Science, Family medicine, Western University (Now in progress)

Occupation

2003-2006 Staff doctor, Motowanishi Satellite clinic, Hokkaido Centre for Family Medicine, Caress Alliance, Muroran, Japan
2006-2008 Director, Hokkaido Centre for Family Medicine, Caress Alliance
Director, Motowanishi Satellite clinic
2008- Director and chair, Hokkaido Centre for Family Medicine (independent from Caress Alliance)

License and Certification

1999- Physician's License in Japan
2005- Japan Primary Care Association certified family physician
2016- International member of Royal College of General Practitioners (UK)

Teaching, Hospital & Research Appointment

2010- Part time teacher in Kyoto University School of Medicine

Memberships

2000- Member, Japan Primary Care Association
2006- Council member, Japan Primary Care Association
2012- Vice president, Japan Primary Care Association
2019- President, Japan Primary Care Association
2000- Direct Member, WONCA
2018- Member at Large of Executive council of WONCA Asia-pacific region

Publications (only English)

Kusaba T, et al. Developing a scale to measure family dynamics related to long-term care, and testing that scale in a multicenter cross-sectional study. *BMC Family Practice* 2014, 15:134
Kusaba T, et al. Influence of family dynamics on burden among family caregivers in aging Japan. *Family Practice*. 2016; 33(5): 466-70.